



Town of Princeton
Needs Assessment & Four
Buildings Master Plan
Summary Report
March 2018

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Background

The Town of Princeton Facilities Steering Committee (FSC) secured the services of Jones Whitsett Architects (JWA) in October 2017, to continue the process of assisting them with the study of and proposed improvements for four of the Town's municipal buildings:

- Bagg Hall
- Town Hall Annex
- Public Safety Complex
- Princeton Center Building

Due to the participation of an active and committed group of volunteers comprising the FSC, and prior studies and reports, in particular, the recent *Princeton Public Buildings Facilities Assessment* completed by HKT Architects in April 2015, the scope of work was limited to the four buildings listed above in hopes of narrowing the possible projects to ones that will solve the most pressing issues from both a functional as well as physical conditions standpoint. The goal at the outset of this conditions study and 4-building master plan was to arrive at a realistic proposal that could be presented to the Town for approval and implementation.

Methodology

JWA kicked off the needs assessment and master plan study with a meeting with the FSC on October 25th, 2017. Our team includes structural, civil, mechanical, electrical and plumbing engineering disciplines as well as a landscape architect and code specialist. This team visited each of the four buildings to gather visual inspection information as well as input from Building Maintenance manager, Phil Connor on November 7, 2017. The FSC provided JWA with prior studies and reports as well as existing drawings. Prior to programming interview meetings conducted on November 8th and 9th, JWA had distributed and reviewed space needs questionnaires from each of the department heads. The FSC worked closely with JWA to learn about, question and help develop the proposed plans and scopes of work for each building. Meetings with the FSC took place on November 14, November 28, December 19, 2017, and January 9, and January 30, 2018. Additionally, JWA and Karen Cruise, Nina Nazarian, and Edie Morgan met with Chiefs Powers and Bennett on December 14th to review the detailed requirements for police and fire needs. JWA undertook site visits to the following public safety complexes: Paxton, Hadley and Sunderland in order to review different approaches to sizing and layout for combined police and fire stations. The data gathered from these complexes is provided in this report and serves as comparative data and was useful in "right-sizing" the public safety complex.

Existing Conditions

Bagg Hall is an important historic building, and is a contributing structure to the Princeton Center Historic District. Bagg Hall is a community asset that has endured well for 134 years. The building commands a high point overlooking Princeton Common and paired with the historic Goodnow Library, forms the civic center of Princeton. Its historic character is protected by a deed restriction from Massachusetts Historical Commission.

Bagg Hall is well built and sturdy with lovely detailing throughout. However, the fact that the second floor is unheated and lacks an accessible means to it has meant that the large meeting space complete with a stage is not utilized for its intended purpose: community meetings, programs and celebrations. Instead, it is currently used for town departmental storage. JWA recommends a full renovation and addition for this historic building to better meet the needs of town government as well as community users.

2.0 Executive Summary

Depending upon when a major renovation project happens at Bagg Hall, in the short term, it is recommended that several improvements to the exterior envelope be addressed in order to stabilize the building foundation at the northwest corner and improve the building envelope overall to begin to address the comfort of its occupants. However, until a more comprehensive renovation/addition project is undertaken, functional and thermal comfort needs of Bagg Hall users will not be fully addressed.

Town Hall Annex is a 1950's era former municipal light company garage building converted for use as meeting space, an office and storage. Town Hall Annex fulfills a crucial need for meeting space in Princeton and is in close proximity to Bagg Hall and Goodnow Library at the Princeton Commons site. However, due to its original purpose, it is not of an equal quality of construction or historic character as Bagg Hall and the Goodnow Library. There is value in retaining this building for critical meeting space until such time as Bagg Hall can be expanded and improved to meet these needs. At the request of the FSC, JWA prepared a scope of work to make improvements to the Annex so that it can function in an improved way for the next decade. This scope and resulting costs are detailed in the Cost Estimates section of this report. Ultimately, we recommend that the Annex be demolished after completion of an addition project at Bagg Hall that expands the building enough to absorb the meeting needs of town departments. This will allow for additional parking that is already in short supply at this site.

Also located at the Princeton Commons site, the **Public Safety Complex** is a building of hybrid construction that has reached the end of its useful life and poorly serves the needs of the police and fire departments. Depending upon when the uses housed in this building are addressed in a larger project better suited to the functional requirements for these departments, there are some short term issues that must be addressed. Scope and costs related to the recommended short-term repairs are detailed in the Cost Estimates section of this report. In the longer term, JWA recommends complete replacement of this building at the Princeton Center Building site. The parking and vehicular circulation requirements for all of the current uses on the Princeton Commons site pose challenges on a regular basis and especially when there are major emergencies requiring police and fire personnel to leave their personal vehicles at the station for long periods of time. Similarly, on days when large public meetings or voting occur, vehicular circulation and parking at this site is a challenge.

Princeton Center Building was originally constructed as a 4-classroom school in 1906. Subsequent addition of a gym, circa 1936, provided much-needed community space, but at a floor level not in line with that of the first floor of the original school (which is also not at grade but can be reached via an exterior ramp). Due to the severity of life safety and code violations for this building, the building inspector has prohibited its continued use, and it is currently unoccupied. This has resulted in Council on Aging moving to a rental space, which they currently utilize in partnership with the Princeton Arts Society at Princeton's Post Office Place. Princeton Center is a contributing structure to the Princeton Center Historic District and the original school building, while in need of repair, may be useable as part of the plan to relocate the Public Safety Complex to this site. However, the later gym addition is of inferior construction and at a different elevation. JWA recommends further study of the possible reuse of the existing school building to potentially serve as office spaces for the police and fire departments as part of a renovation/addition scheme. The other option would require the complete demolition of the Princeton Center Building and replacement with a new Public Safety Complex. In our cost models, the two options were fairly equal in cost at this early conceptual stage; however, the renovation/addition scheme is estimated to be approximately 7% more than an all-new scheme.

Functional Considerations

The JWA team worked with town department representatives to develop programs for each of the following uses:

- Town Offices
- Council on Aging (COA) and Community Uses
- Police
- Fire

2.0 Executive Summary

While the library was not formally included in this master plan study, JWA was made aware of the fact that the library is in constant search for space to hold their programs, and hope that any plans will take this fact into consideration. Similarly, the Princeton Arts Society and Princeton Historical Society, former inhabitants of the Princeton Center Building have been displaced, and Council on Aging and the Princeton Arts Society are currently sharing the space rented by COA; they are natural partners from a programming and space needs standpoint. All of these groups would benefit greatly from access to community use space.

Functionally, the following table summarizes the most critical issues identified for each user group:

User	Priority 1	Priority 2	Priority 3
Town Offices	Lack of meeting space	Insufficient separation between public and private functions	Inefficient and poorly located storage
COA / Community	Insufficient space to accommodate all programs	Insufficient kitchen facility	No permanent home
Police	Lack of holding cell	Lack of booking and interview spaces to support proper police procedures	Lack of secure storage for firearms and confidential files and evidence
Fire	Lack of spaces and facilities for proper decontamination of firefighters and their gear	Lack of sufficiently-sized and quantity of apparatus bays and no vehicle exhaust system	Lack of secure storage for medicines, medical equipment and confidential files as required by law

From a functional and existing conditions standpoint, the uses most jeopardized by the condition and layout of their buildings are police and fire. The lack of essential spaces for fire gear and firefighter decontamination after exposure to carcinogens when fighting a fire is a serious concern. Equally concerning is a similar lack of essential spaces for the police; notably, without a holding cell, the police lock an arrestee to the wall in their open office space, which is unsafe for non-police personnel and restricts usage of adjacent spaces when an arrestee is locked to the wall.

Town hall employees are also hampered by their physical surroundings. Those who work in town hall are typically uncomfortable due to the lack of insulation and needed updates to heating, ventilating and cooling systems in Bagg Hall. They are often interrupted in their work by the public, given a general lack of physical barriers such as help counters, which would prevent people from walking directly into their work spaces. Additionally, a lack of meeting spaces for private conversations and appropriately sized and located storage poses challenges for effectively conducting town business.

Finally, Council on Aging is currently located in rented space that does not have all of the amenities needed to continue to support the senior citizens of Princeton. Their partnership with Princeton Arts Society does help defray the costs of renting the space, however, with only a single program space, scheduling conflicts has resulted in some programs being located elsewhere.

Project Sites

The scope of this study identified the two sites on which the four buildings currently sit as those to be studied first: the Princeton Commons site: home to Bagg Hall, Town Hall Annex, Goodnow Library and Public Safety, and the Princeton Center Building site. While the design team did discuss the possibility of other sites for the various building programs, it became clear that the programmatic needs of the town departments included in this study could be accommodated on these existing, centralized and prominent town owned sites. For the Princeton Commons site, dependent upon the timing of the recommended projects, careful consideration will need to be given to site access and parking needs as projects are developed and executed.

2.0 Executive Summary

Additionally, it should be noted that the quality of water and longevity of the well and septic systems at both the Princeton Commons and Princeton Center sites is not fully known. It is most likely that any changes to the number of users may incur modifications to the existing systems and will require working with the DEP.

Summary of Recommendations

The following are guiding principles that the JWA team presented to the FSC on November 28th formed the basis of the design options developed for FSC consideration:

- Bagg Hall is worth saving, restoring and improving
- Police and Fire facilities are extremely inadequate posing safety concerns
- Princeton Center Building may be worth saving if existing spaces can be used for department-only use
- Town Hall Annex is not worth additional investment beyond stabilizing it for short term use
- The two town-owned sites part of this study are well suited to support the town hall, community and public safety needs

JWA's recommended options conform to these precepts, and should help the FSC to continue to prioritize their projects in the years to come. The following are the recommendations resulting from the study of the four buildings and survey of user needs:

1. A new facility for police and fire should be constructed at the Princeton Center site either as an all-new building or a renovation/addition to the original portion of the existing Princeton Center Building. Town hall departments should remain in a renovated and enlarged Bagg Hall
2. Council on Aging and community uses should be accommodated in the improved and enlarged Bagg Hall
3. The Town Hall Annex and existing Public Safety Complex should be demolished and the site redesigned to provide additional parking to support the enlarged and improved Bagg Hall as well as the Goodnow Library.

Site Assessment



PRINCETON COMMON SITE



Existing Site Facts

Location:	Between Hubbardston Road (Route 62) and Mountain Road (off of Route 31)
Acreage:	2 Parcels make up the Town Hall Complex 0.55 Acre Town Annex + 11 Acre Common
Zoning Classification:	Agricultural Residential Zone
Setbacks:	50 LF Front, 10 LF Side and Rear
Max Building Height:	35 LF or 2.5 Stories
Resource Areas:	None within property boundary
Resource Buffers:	None within property boundary

General Existing Site Pros and Cons for Town Common (Bagg Hall + Library+ Annex+ Public Safety)

Site Pros:

- + Town services are collocated on one site
- + Shared well and septic services easier to maintain (1 test, 1 pump)
- + Multiple points of access off of Hubbardston and Mountain Road.
- + Potential to increase visibility/ access to public park behind Town Annex
- + Granite curbing in good condition
- + Wonderful views across common

Site Unknowns:

- Quality of water from well, available gallons per day (gpd), usage of water (gpd)
- Longevity of existing septic system
- Extent of ledge on site, and alternative septic locations if septic system needs replacement

Site Cons:

- Grade changes and circulation patterns may restrict areas for expansion.
- Any expansion into the Common would require bringing in fill due to the ledge on site or navigating extreme changes in grade between the common and upper areas.
- Pavement needs repaving in certain areas
- Pedestrian pavements need replacement
- Depending on gpd usage of water, site improvements or renovation may trigger the requirement to designate the well as a public water supply well. In which case no pavements or buildings could be placed within its zone 1, or a new well may need drilling.
- Depending on staff population, site improvements may require DEP permitting for septic.
- Majority of site is within IWPA of two other public water supplies- first congregational church and village store (may still be able to propose improvements, but may need more regulatory oversight).

Bagg Hall Specific Pros and Cons

Bagg Hall Pros:

- + Creates an iconic historic brand for the Town Common with the Town Library
- + Prominent building with visibility from far away

Bagg Hall Cons:

- Drainage issues in basement
- Accessibility to future floors
- Lots of mulch exposed in planting areas, review planting strategy with town for maintenance.

3.1 Existing Conditions Report: Bagg Hall

Site Assessment

Priority (A-C): Anticipate dealing with item within A= 0-3 years; B=3-6 years; C=7+ years

Priority (A-C)

Summary

Exterior Conditions



Well

- A ■ Quality of water and longevity of well unknown. If improvements proposed, may be required to meet DEP requirements for public water supply.
- B ■ Existing well has the capacity of 20 GPM, with no water treatment. Well pump is located 272 ft below grade. The static water level is approximately 25 ft below grade. Well is an 8" Artesian well. Installation Date Unknown.



Drainage

- A ■ Existing drainage appears to be in place. We heard anecdotally that the basement of Bagg has water issues. This drainage system is occasionally overwhelmed during heaving rainstorms and there is no subsurface drainage around the building other than parking area catch basins. Any improvements to Bagg will need to consider addressing these concerns.



Retaining Walls

- A ■ Existing Retaining Walls with access to basement are loosely placed. Site improvements may consider improving these walls

3.1 Existing Conditions Report: Bagg Hall

Site Assessment



Paving

- A ■ Paving has many cracks and patches in the parking areas surrounding Bagg Hall.



ADA Access

- B ■ Existing Ramp may not meet current ADA codes. Improvements may require updates to existing ADA ramp, as well as additional points of access into the building.



Planting

- A ■ Existing Planting sparse. Large mulch beds. Team may review with Town maintenance to evaluate alternatives and maintenance expectations for softscape areas around Town buildings.



Septic

- B ■ Existing Septic System is shared by multiple buildings on site. The system has been pumped regularly. Unknown as to the system's longevity or if an alternative site can be located if this system needs replacement. Depending on the number of full time staff and users on site, the system may require review by DEP

3.1 Existing Conditions Report: Bagg Hall

Site Assessment



Pedestrian Pavements

- A ■ Pedestrian concrete pavers are in need of replacement between Bagg Hall and the Library.



Curbing

- C ■ Existing Granite Curbing still in good condition. May consider reusing or resetting if improvements are proposed that require adjusting road layouts or paving. Phil Connors reports that some sections are a problem due to snow removal operations.

3.1 Existing Conditions Report: Bagg Hall

Code Assessment

Code Assessment

Type of Construction: Brick exterior bearing walls, wood frame floors and roof – Type IIIB
Year of Construction: 1884
Latest Addition: 1999
Gross Sq Ft: 5,600 sf + 2,800 sf basement
Occupancy: Use Group B (offices), Use Group A-3 (assembly hall)
Assessed Value: Bagg Hall building according to property record cards is valued at \$448,500.
This property, along with the Library and Fire Station, appear to be combined in overall valuation at \$1,566,000, including land value.

Existing buildings are generally not required to comply with the requirements of the Massachusetts State Building Code (780 CMR) or Massachusetts Architectural Access Board's Regulations (521 CMR) until such time that the building is renovated. The level of compliance with each code is dependent on the scope of the renovation. For the purposes of this review, existing code issues have been prioritized as follows:

Priority A	Immediate concern that must be addressed regardless of whether the building is renovated.
Priority B	Code issues that are likely to have to be addressed for a partial building renovation. A Level 1 or Level 2 Alteration under the International Existing Building Code (IEBC) as adopted by 780 CMR. Renovation cost greater than \$100,000 but less than 30% of the building's assessed value (521 CMR compliance thresholds).
Priority C	Code issues that are likely to have to be addressed for a full building renovation. A Level 3 Alteration under the International Existing Building Code (IEBC) as adopted by 780 CMR. Renovation cost greater than 30% of the building's assessed value (521 CMR compliance thresholds).

Priority (A-C)

Summary

Fire Protection Systems



Sprinkler System:

- B ■ If more than 50% of an individual floor is reconfigured, sprinkler protection is required within the reconfigured area only, unless it can be demonstrated that the available water supply is not sufficient for the design of a sprinkler system without a fire pump (IEBC 804.2.2).
- C ■ Sprinkler protection is required throughout the building, unless it can be demonstrated that the water supply is not sufficient (MGL C. 148 Sec. 26G)

Fire Alarm System:

- C ■ The building includes an existing fire alarm system with audible alarms only (no visual). If a new sprinkler system is required as discussed above, a new fire alarm system

3.1 Existing Conditions Report: Bagg Hall

Code Assessment

must be installed to properly monitor the sprinkler system and provide alarms throughout the building (780 CMR 903.4.2). Also if full compliance with 521 CMR is required due to the cost of the work visual alarms must be provided throughout the building in accordance with NFPA 72.

Means of Egress



Stairs:

Although the existing stairs do not comply with all of the dimensional requirements for new construction, regardless of the level of renovation they do not have to be brought into full compliance (other than potentially handrails and nosings as discussed below).

- B ■ For a Level 2 renovation stairs within the work area must be enclosed in 1 hour rated construction (IEBC 803.2). Although if the building is fully sprinklered a rated enclosure for the stairs is not required (IEBC 803.2 Exception 5).
- C ■ A Level 3 renovation requires full enclosure of all stairs in 1 hour rated construction at all levels, unless the building is full sprinklered (IEBC 903.1). All stair handrails and nosings must be altered or replaced to comply with 521 CMR (521 CMR 27).



Exit Signs & Emergency Lighting

- B ■ The building includes existing exit signs that appear to have the ability to be illuminated, although they were not illuminated at the time of the site visit. Signs must be repaired or replaced to comply with the requirements for new construction in any renovated areas (780 CMR 102.6.4).

3.1 Existing Conditions Report: Bagg Hall

Code Assessment



- B ■ Existing emergency lighting fixtures were not tested or evaluated for adequate coverage but may need to be replaced or supplemented in any renovated areas to comply with current code requirements (780 CMR 102.6.4).

Accessibility



The existing building includes a sloped walkway leading to a door at grade. There is also a semi-accessible toilet room on the 1st Floor. The remainder of the building is generally not accessible.

- B ■ The slope of the existing walkway leading to the accessible side entrance door was not measured, however if it exceeds 5%, handrails on both sides of the ramp are required (521 CMR 24). The existing accessible toilet room is not compliant as there is insufficient clear floor space in front of the toilet (must extend out a minimum of 42" in front of the toilet) and the side grab bar is less than 42" long (521 CMR 30.7.2 & 30.8).
- C ■ If full compliance is required (due to cost of alterations exceeding 30% of the assessed value) significant alterations would be required including the addition of an elevator to provide wheelchair access to the second floor and balcony. A ramp or wheelchair lift to the stage is required if it will be open to the public. All toilet rooms and entrances would also have to be made accessible. Variances would likely be required to allow existing historical elements to remain (i.e. front entrance and circular stairs).



3.1 Existing Conditions Report: Bagg Hall

Architectural Assessment

Architectural Assessment

Type of Construction: Brick exterior bearing walls, wood frame floors and roof
Year of Construction: 1884
Latest Addition: 1999 (vault)
Gross Sq Ft: 5,600 sf + 2,800 sf basement (2,800 gsf footprint)
Historic status: A contributing property in the Princeton Center Historic District; MHC holds a permanent preservation restriction requiring ongoing maintenance, and review and approval of any proposed work on the building. Restriction is recorded with deed and runs in perpetuity with the land.

Priority (A-C)

Summary

Exterior Conditions



Roof:

- B ■ Conical roof is missing slate
- B ■ Roof and flashings are in need of repair - daylight can be seen through the roof in the attic at the interface of exterior brickwork and cornice at the soffit which was not included in previous repairs made at roof.



Walls:

- B ■ Significant settlement crack at northwest corner that requires repair and west wall requires more thorough examination
- B ■ Some brick repointing is needed
- A ■ Efflorescence and spalling of bricks and sandstone on east facade is noticeable - should be seen as an emergency repair, as bricks could fall onto persons using the handicapped entrance

3.1 Existing Conditions Report: Bagg Hall

Architectural Assessment



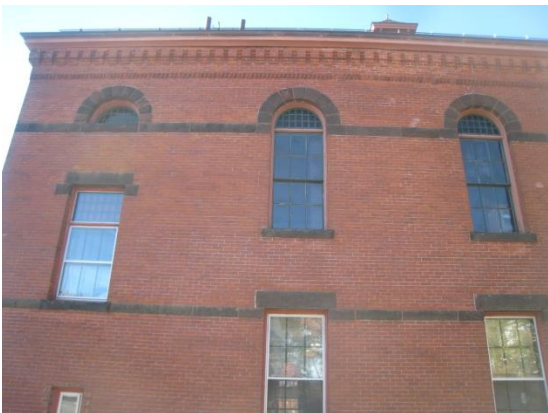
Insulation:

- B ■ No exterior insulation in first floor, walls and attic.
- First floor ceiling: to be determined.



Exterior Doors:

- B ■ Original entry doors are in fair to good condition
- A ■ Accessible entry door has been replaced, some repairs are needed



Windows:

- A ■ Fair to poor condition overall
- A ■ First floor windows are drafty - pockets for sash weights allow air penetration.
- B ■ Windows are difficult to operate
- A ■ Second floor windows are in poor shape
[P. Connors notes that 6 sets of wood sash have been removed due to decay/deterioration]

3.1 Existing Conditions Report: Bagg Hall

Architectural Assessment

Interior Conditions



Floors:

- C ■ Wood flooring is in fair to good shape where exposed
- B ■ Carpet appearance is fair/worn condition



Walls:

- C ■ 1st floor - condition of walls is good
- B ■ 2nd floor - plaster is water stained and paint is peeling. Historic stenciling has been painted over. Walls need to be patched; wainscoting and window stools need repair.
- B ■ Evidence of moisture has been found on interior walls - possibly caused by metal gutter and cornice flashing. [P. Connors reports that observed moisture is old and is believed to have been corrected with recent roofing project.]



Ceilings:

- C ■ 1st floor - ceiling is in good condition, except for 1 small crack in the clerk's office.
- B ■ 2nd floor - poor condition, water damage is apparent and paint is peeling.

3.1 Existing Conditions Report: Bagg Hall

Architectural Assessment



Interior Doors:

- Many original doors remain.
- A ■ 1st floor - Fair condition, but hardware is non ADA compliant. There are some replacement doors which do not match, historically.
- B ■ Aluminum door at entry is not historically compatible

3.1 Existing Conditions Report: Bagg Hall

Structural Assessment

Structural Assessment

Bagg Hall is a two-story brick building with town offices on the first floor and an auditorium with a stage at the north end and a balcony located at the south. The attic is accessible through a hatch in the ceiling of an extra “room” above the northeast stairs. A turret is located at the southwest corner for a stairway with an unfinished area at the top of the turret. The basement is full depth at the north end of the building and a crawl space for the remainder of the area because of bedrock preventing the area to be fully excavated.

Priority (A-C)

Summary

Exterior Conditions



A ■ Settlement of West Wall

Ground water is running down the hill and has been infiltrating the east foundation wall and continued through the building to the west foundation wall. This water movement has resulted in a hole in the east foundation wall and undermining of the west foundation wall near the door to the exterior. The undermining of the west wall has caused extensive cracking in both the north and west wall.

Drainage should be installed to prevent the water from continuing through the basement. After the water has been redirected around the building, the opening in the east foundation wall should be infilled. The base of the west foundation wall near the doorway should be exposed to confirm that the wall is bearing on soil and that the water has not washed it away. Once the foundation wall has been determined to be stable, the cracked brick masonry should be dismantled and reset on the north and west elevations. It should be noted that it is not feasible or necessary to dismantle and reset the wall to be level. Because of this there will still be a slant to some of the masonry elements after the repairs are completed.



A ■ Potential Damage to Brick Corbel

The brick corbel at the top of the exterior walls was not accessible during our site visit but is an area that is vulnerable to deterioration from water damage.

Additional investigation should be completed from a lift to allow for a close inspection of the brick corbel. The brick masonry should be tapped on with a hammer to locate loose brick masonry. Where the masonry is found to be loose, the brick corbel should be dismantled and reset.

3.1 Existing Conditions Report: Bagg Hall

Structural Assessment



C ■ Eroded Mortar Joints

There are eroded mortar joints around the exterior of the building. The larger areas of eroded joints are located below the watertable and at the northwest corner on both elevations. The eroded mortar joints should be cut and pointed with a compatible mortar.



C ■ Deteriorated Brownstone

The brownstone units at the front portico are in varying states of deterioration from the salts used to prevent ice on the stairs and entry. Presently the damage is cosmetic but eventually the wall could be undermined as the deterioration continues. It can be difficult to properly repair brownstone units, and the repairs will have a limited life. The worst of the deteriorated stones should be replaced before the deterioration becomes a structural issue.

C ■ Cracked Mortar Joints

In addition to the cracked brick masonry described above, there are some cracked mortar joints unrelated to the west wall settlement. These cracks are located above two of the second story windows on the east elevation and above one second story window on the south elevation. The cracked masonry should be dismantled and reset.



A ■ Cracked Stone Units

There are cracked stones on the west elevation from the settlement described above. The cracked stones should be pin repaired or replaced during the repair of the surrounding masonry.

3.1 Existing Conditions Report: Bagg Hall

Structural Assessment



B ■ Loose Brick Units

There are a couple of loose brick units at the upper northwest corner under the flashing of the safe addition on the north elevation. The loose brick units should be removed and reset.

Interior Conditions



B ■ Settlement of West Wall

The settlement of the west wall, described above, has caused the first and second floor beams in the area of the settlement to deflect. This movement has resulted in greatly sloped floors. There are also cracks in the plaster from this settlement.

The first floor beam does not appear to be damaged from the deflection of the west end. An attempt can be made to raise the beam end to create a more even floor but it is unlikely to be restored to its original state. After the drainage, foundation and exterior masonry repairs are completed, along with any adjustments to the beams, the cracked plaster should be repaired.



C ■ Water Damage

There is water damage visible in the second floor ceilings, which has caused the plaster to deteriorate. By reviewing the areas from the attic space, the water infiltration appears to have been eliminated. The damaged plaster should be repaired.

3.1 Existing Conditions Report: Bagg Hall

Structural Assessment



C ■ Deteriorated Masonry

There are eroded mortar joints in both the brick and stone foundation and spalled brick units, this can be seen at both the foundation walls and interior piers. The exposed brick masonry in the northeast stairway also has eroded mortar joints and spalled bricks. In the upper turret room there is a crack in the interior brick masonry wall that is supported by steel beams. The eroded mortar joints should be cut and pointed with a compatible mortar and the worst of the spalled bricks replaced. The cracked masonry should be dismantled and reset.



A ■ Damaged Plaster Keys

The back side of the second floor ceiling plaster could be reviewed. Lath and plaster ceiling and wall finishes is installed by pushing the plaster through the spaced between the lath boards. The plaster that extends past the back face of the lath is known as “keys”. It appears in some areas that the keys do not extend fully through the lath and may be damaged. The damaged and missing keys could result in the plaster becoming separated from the lath and falling. The connection between the lath and plaster should be reinforced. This work should be completed by plaster specialists.

Fire Protection Assessment

Priority (A-C)	Summary
Exterior Conditions	<p>The building does not have an automatic sprinkler system.</p> <p>In general, Massachusetts General Law M.G.L. c.148, s.26G requires that any existing building over 7,500 square feet that undergoes major alterations or building addition must be sprinklered. Examples of major alterations are demolition or reconstruction of existing ceilings or installation of suspended ceilings; removal of sub flooring; demolition and/or reconstruction of walls, doors, or stairways; or removal or relocation of a significant portion of the building’s mechanical or electrical systems. Alterations are considered major when such work affects 33% or more of the building area or when total work (excluding sprinkler installation) is equal to 33% or more of the assessed value of the building.</p> <p>If the proposed project scope exceeds these thresholds then the existing building, and its additions if applicable, will require installation of an automatic sprinkler system.</p>



Plumbing Assessment

Priority (A-C) Summary

Interior Conditions



Executive Summary:

Presently, the Plumbing Systems serving the building are cold water, hot water, sanitary, waste and vent system, and LP gas. Building is served by on-site well water and a shared septic system.

Fixtures:

There are two bathrooms in the building. Facilities are located on the first floor only. One unisex accessible bathroom is adjacent to the building Lobby. The other is a non-accessible staff bathroom located adjacent to the offices.

Unisex water closet is floor mounted, tank type, vitreous china. Lavatory is wall hung with manual faucet. Water closet handle is on wrong side of tank and does not meet accessibility code. Lavatory does not have a mixing valve to limit temperature to below 110 deg F.

Staff bathroom water closets are floor mounted, tank type, vitreous china. Lavatory is wall hung with individual hot and cold cross handle faucets. The room is not accessible.

Staff sink is single bowl, counter mounted, stainless steel with gooseneck faucet.

- A ■ Recommend fixtures be replaced. Separate accessible bathrooms should be provided for public and staff, and each sex.
- A ■ Provide mixing valves at lavatories to limit hot water temperature to 110 deg. F.
- A ■ Provide service sink and drinking fountain.



3.1 Existing Conditions Report: Bagg Hall

Plumbing Assessment



Water Systems:

The building is supplied from one well which serves all four buildings on the Town campus; Library, Bagg Hall, Public Safety Building, and the Annex building. The pressure tank is located in the basement of Bagg Hall. The water is supplied from Bagg Hall to the Public Safety Building, then to the Annex building. The well pressure tank has a 90 gallon volume.

Domestic water piping is copper tubing with sweat joints and CPVC tubing. The majority of piping (70%) is insulated.

Domestic hot water is generated through an electric tank type water heater. Water heater is located in the Basement. Water heater has a 30 gallon capacity and was manufactured in 2013.

The system is not equipped with a mixing valve or expansion tank. The hot water system is not recirculated.

A Recommend installing thermostatic mixing valve and hot water circulator on water heater.

A Insulate all domestic water piping.



LP Gas:

There are two exterior LP gas storage tanks.

LP gas is supplied to the building generator.

Gas piping is black steel with screwed joints. Piping is run on the exterior of the building/roof, from the storage tanks to the generator.

A Gas piping is showing signs of corrosion; recommend painting exterior gas piping.



3.1 Existing Conditions Report: Bagg Hall

Plumbing Assessment



Drainage Systems:

Cast iron is used for sanitary drainage. Smaller pipe sizes are copper tubing. Where visible in Basement cast iron appears to be in fair to good condition.

- A Recommend video inspection to confirm integrity and pitch of existing below grade piping.

In general, the cast iron drainage piping can be reused even in a major renovation where adequately sized for the intended new use.

3.1 Existing Conditions Report: Bagg Hall

HVAC Assessment

HVAC Assessment

Priority (A-C)

Summary

HVAC Conditions



Partially Blocked Hot Water Baseboard Heat



Hot Water Baseboard Heat



Oil Fired Hot Water Boiler

Heating Plant:

There is one oil-fired cast iron hot water boiler manufactured by Buderus, Model Logano G115/5WS with a gross output capacity of 136 MBH and a net IBR output of 119 MBH (Action Priority C). The boiler fires 1.1 GPH of #2 fuel oil via a Riello Model 40 power burner. The boiler is provided with a dual low water cut-off and all operating and safety controls. Fuel oil is stored in a 330 gallon basement oil tank. The boiler is vented to a masonry chimney via a 6" single wall galvanized vertical riser which immediately transitions to a 6" double wall insulated horizontal breeching. Combustion air migrates into the boiler room due to the large volume of the open basement area. Hot water expansion is handled by a Flexco Model HTX60 expansion tank. There is no air scoop or air separator on the hot water heating system. Hot water is circulated to the building via two (2) Grundfos Model UPS 15 58 FRC 3 speed pumps, with each pump dedicated to a heating zone (Action Priority C). Heating hot water is supplied to cabinet unit heaters, horizontal unit heaters and baseboard radiation via copper piping insulated with closed cell foam insulation. The existing boiler was installed around 2007, and the existing piping distribution and baseboard radiators were installed in the early 1990s.

First Floor:

The offices and hallways on the first floor are heated by hot water baseboard radiation. The foyer is heated by a cabinet unit heater and the handicapped bathroom off the foyer is heated by a recessed cabinet unit heater. The rear stairwell is heated by a horizontal unit heater. There are two programmable thermostats, both centrally located (one towards the north and the other towards the south), which control the heating equipment. The cabinet unit heater in the foyer, handicap toilet room and rear stairway are controlled by adjacent thermostatic sensor controls. Due to the lack of individual temperature control, and in some cases, furniture blocking air movement over the baseboard heaters, many employees have electric space heaters under their desks. It also appears that the length of baseboard heat is inadequate for the heat loss through the big windows and poorly insulated walls.

3.1 Existing Conditions Report: Bagg Hall

HVAC Assessment



Circulating Pumps

The furniture blocking the convective flow through the baseboard heaters also exacerbates the overall lack of installed baseboard capacity. The second heating zone is the foyer/handicapped bathroom. Ventilation is via operable windows. The bathrooms have no ventilation other than operable windows. The offices are cooled by window air conditioners, which prevent the windows from being used for ventilation during the summer.

Second Floor:

The second floor is an unoccupied storage area and is not heated. There is no ventilation other than operable windows. A large ceiling opening communicates with the attic.

Recommendations

- A ■ Move furniture away from wall to not impede airflow through baseboard heat.
- A ■ Add additional baseboard heat.

- B ■ Add self- contained valves to any baseboard that tends to overheat room.
- C ■ Add ventilation system.
- C ■ Add ductless mini-split air conditioners, as they are quieter than through the wall air conditioners, plus are more efficient.
- C ■ Install air separator near boiler.

Electrical Assessment

Existing System: Electrical

Size of Service:

200A 120/240V 1Ph 3W Service

Underground Service from utility pole to 200A meter socket and main disconnect. The load-side of the meter feeds a 200A enclosed circuit breaker in the basement, which feeds a Kohler RDT ATS. The Load side of the ATS feeds the buildings Main Distribution Panel MDP in the basement, which feeds an adjacent 100A panel SP1. MDP also feeds the sub-panel/load-center on the first floor.

The emergency side of the ATS is fed from an adjacent 60A enclosed circuit breaker which is fed from an exterior 60A enclosed circuit breaker.

The underground service lateral appears to terminate in a junction box ahead of the meter; suspect the service lateral leaving this junction box runs over to and feeds the Annex Building.

Generator: Exterior propane-fueled 15kW

Capacity:

Electric Closet:

Service No. 1 and Service No. 2 electrical service equipment and associated distribution arc located in the basement.

Wiring:

Mix of obsolete Knob & Tube, non-metallic sheathed cable and armor-clad cable of various ages and condition.

General Conditions: Fair

Sub-Panels:

- First Floor Coffee/Kitchenette - 60A 120/240V I-Ph 3W
- Second Floor Back Stage - 60A 120/240V I-Ph 3W consisting of cartridge fuses (some replaced with copper pipe) and knife switches.

S-P Locations: First and Second Floor

Lighting:

Incandescent, Incandescent fixtures with CF lamps (Edison-base), linear fluorescent (T-8, T-12), and more recently, LED lighting updates.

Receptacles:

Quantity and location is sparse. Grounding type receptacles where noted but suspect some may have inadequate ground based on branch circuit wiring type.

Emergency Ltg:

Plug-in and hard-wired emergency battery units; quantity and coverage does not meet life safety code; all units should be tested for proper operation.

Non-illuminated EXIT signage utilized throughout.

3.1 Existing Conditions Report: Bagg Hall

Electrical Assessment

Fire Alarm:

The building houses an obsolete wireless smoke detection system and an inoperable fire and security system. In the past the system reported to the dispatch annunciator in the Public Safety Building, but this connection has been disabled; and what signaling devices there are, do not meet ADA and NFPA standards for a public building.

Smoke Detectors: Observed but not tested

Heat Detectors: None

CO Detectors: (1) Back Stairwell, 1st floor

Audible & Strobe: None

Annunciator Panel: None

PA System: None Observed

Low Volt Systems: Voice, Data, and Security. The storage and access do not meet BICSI standards.

Code Issues: Fire Alarm and Carbon Monoxide Coverage, Emergency Egress Illumination.

Suggested Actions:

Maintain System: Main Electrical Service, Electrical Distribution & Feeders, Branch Circuiting, Junction Boxes and Receptacles.

Emergency and or Stand-By Generator, ATS, Distribution & Feeders

Replace Systems: Main Fire Alarm Panel, Signaling and Initiation Devices, Radio Master Box

2nd Floor Electrical Distribution and Branch Wiring

Light fixtures (Florescent T-12) and Incandescent to LED

Entryway Lighting

Intrusion Detection

Voice/Data

Add Systems: CCTV – Remote Access

Audio Visual Infrastructure – 2nd Floor Hall

No Action Req'd: None. All Systems need updates and or replacement.

Code Compliance: The Fire Alarm System coverage, emergency egress pathway instructions and emergency lighting does not meet code.

3.1 Existing Conditions Report: Bagg Hall

Electrical Assessment

Priority (A-C)

Summary

Interior Conditions



Exposed Junction Boxes:

- A ■ Coverplates for junction boxes to be closed.



Initiating Device:

- A ■ Replace Fire Alarm System initiating devices: smoke, heat, CO and pull stations per code.



Smoke and heat Device:

- A ■ Replace Fire Alarm System initiating devices: smoke, heat, CO and pull stations per code.

3.1 Existing Conditions Report: Bagg Hall

Electrical Assessment



Typical Egress Lighting Solution:

- A ■ Replace Fire Alarm System, means of egress lighting and signage and add initiating devices: smoke, heat, CO and pull stations per code.



Minimal Coverage of F/A Devices:

- A ■ Replace Fire Alarm System, means of egress lighting and signage and add initiating devices: smoke, heat, CO and pull stations per code.



F/A Device:

- A ■ Replace relay panel with radio master box.

3.1 Existing Conditions Report: Bagg Hall

Electrical Assessment



Security and F/A:

- A ■ Replace Fire Alarm System initiating devices: smoke, heat, CO and pull stations per code.



Extensive use pf PVC Conduit:

- C ■ Replace PVC conduit with steel pipe.

Recommended Actions:

Immediate concerns are for the replacement of the Fire Alarm System, ADA Signaling and Initiating Devices and Radio Masterbox.

Add Source of Power for an Elevator and upgrade the Standby power to account for Egress Lighting, Life Safety, Tel/Data and Elevator.

Update Tel/Data and Server Room to Building Industry Consulting Service International (BICSI) Standards.

Add Intrusion Detection and CCTV entryways, stairwells.

Site Assessment



PRINCETON COMMON SITE



Existing Site Facts

Location:	Btwn Hubbardston Road (Route 62) and Mountain Road (off of Route 31)
Acreage:	2 Parcels make up the Town Hall Complex 0.55 Acre Town Annex + 11 Acre Common
Zoning Classification:	Agricultural Residential Zone
Setbacks:	50 LF Front, 10 LF Side and Rear
Max Building Height:	35 LF or 2.5 Stories
Resource Areas:	None within property boundary
Resource Buffers:	None within property boundary

3.2 Existing Conditions Report: Town Hall Annex

Site Assessment

General Existing Site Pros and Cons for Town Common (Bagg + Library+ Annex+ Public Safety)

Site Pros:

- + Town services are collocated on one site
- + Shared well and septic services easier to maintain (1 test, 1 pump)
- + Multiple points of access off of Hubbardston and Mountain Road.
- + Potential to increase visibility/ access to public park behind Town Annex
- + Granite curbing in good condition
- + Wonderful views across common

Site Unknowns:

- Quality of water from well, available gallons per day (gpd), usage of water (gpd)
- Longevity of existing septic system
- Extent of ledge on site, and alternative septic locations if septic system needs replacement

Site Cons:

- Grade changes and circulation patterns may restrict areas for expansion.
- Any expansion into the Common would require bringing in fill due to the ledge on site or navigating extreme changes in grade between the common and upper areas.
- Pavement needs repaving in certain areas
- Pedestrian pavements need replacement
- Depending on gpd usage of water, site improvements or renovation may trigger the requirement to designate the well as a public water supply well. In which case no pavements or buildings could be placed within its zone 1, or a new well may need drilling.
- Depending on staff population, site improvements may require DEP permitting for septic.
- Any improvements to vehicle wash bays may require an industrial waste holding tank/ or tight tank
- Majority of site is within IWPA of two other public water supplies- first congregational church and village store. (may still be able to propose improvements, but may need more regulatory oversight.

Town Annex Specific Pros and Cons

Town Annex Pros:

- + Out of viewshed of Hubbardston and Mountain Road, preserving historic character of Town Center
- + Single story building with direct access off of parking area (accessible)
- + Hides propane tank and Waste Storage Shed

Town Annex Cons:

- Hides access to public park
- May be conflicts between public safety services and Town annex for parking and circulation
- Not a lot of room for expansion

Existing Site Priorities

Overall, the longevity of the site water and septic systems are unknown. Once improvements are proposed to the building it may trigger bringing site systems up to code/ construction of new systems. Pedestrian Pavements require replacement at the ADA parking.

3.2 Existing Conditions Report: Town Hall Annex

Site Assessment

Priority (A-C): Anticipate dealing with item within A= 0-3 years; B=3-6 years; C=7+ years

Priority (A-C)

Summary

Exterior Conditions



Paving

- B ■ Asphalt Paving has been patched and is cracking in places.
- Front Entry is fully accessible at grade



Downspouts

- B ■ Drainage at building may need to be addressed with any site improvements.



Hazardous Materials Shed

- C ■ Shed appears to be in good condition from the outside

3.2 Existing Conditions Report: Town Hall Annex

Site Assessment



Park Access

- B ■ Access and entrance to Park undefined.

3.2 Existing Conditions Report: Town Hall Annex

Code Assessment

Code Assessment

Type of Construction: CMU load bearing walls, wood truss roof – Type V
Year of Construction: 1950's
Latest Addition: 2000
Gross Sq Ft: 2,460 sf
Occupancy: Use Group B (offices), Use Group A-3 (meeting room)
Assessed Value: Assessed building value of \$168,300, with a total assessed value of \$240,500

Existing buildings are generally not required to comply with the requirements of the Massachusetts State Building Code (780 CMR) or Massachusetts Architectural Access Board's Regulations (521 CMR) until such time that the building is renovated. The level of compliance with each code is dependent on the scope of the renovation. For the purposes of this review, existing code issues have been prioritized as follows:

Priority A	Immediate concern that must be addressed regardless of whether the building is renovated.
Priority B	Code issues that are likely to have to be addressed for a partial building renovation. A Level 1 or Level 2 Alteration under the International Existing Building Code (IEBC) as adopted by 780 CMR. Renovation cost greater than \$100,000 but less than 30% of the building's assessed value (521 CMR compliance thresholds).
Priority C	Code issues that are likely to have to be addressed for a full building renovation. A Level 3 Alteration under the International Existing Building Code (IEBC) as adopted by 780 CMR. Renovation cost greater than 30% of the building's assessed value (521 CMR compliance thresholds).

Priority (A-C)

Summary

Fire Protection Systems



Sprinkler System:

- Since the building is less than 5,000 sqft. sprinkler protection is not required regardless of the level of renovation (780 CMR Table 903.2).

3.2 Existing Conditions Report: Town Hall Annex

Code Assessment



Fire Alarm System:

- A ■ The building has an existing fire alarm system that is currently disconnected and not functioning. Given the current assembly uses of more than 49 occupants the fire alarm system must be restored.

Means of Egress



The building includes three exterior doors that provide adequate means of egress.

Exit Signs & Emergency Lighting

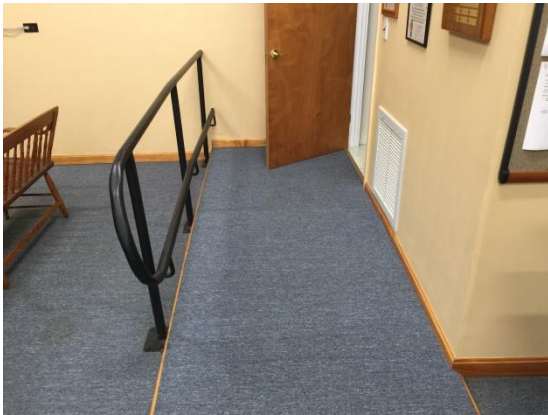
- B ■ The building includes non-illuminated exit signs. Illuminated exit signs with battery back-up must be provided as required for new construction in any renovated areas if the building will be used for assembly purposes by more than 49 occupants (780 CMR 102.6.4).
- B ■ Existing emergency lighting fixtures were not tested but appeared sufficient for the space. They should be tested to confirm they will operate properly and have sufficient battery back-up power if the space will be used for assembly purposes by more than 49 occupants (780 CMR 102.6.4).



3.2 Existing Conditions Report: Town Hall Annex

Code Assessment

Accessibility



The existing building includes an entrance door at grade and an accessible toilet room. Only the meeting room area is at grade elevation, the other portion of the building is one step higher and currently accessed via a non-compliant ramp.

- B ■ The existing entrance door at grade provides functional access, however there is a small slope at the door threshold, it is not level as required (521 CMR 26.6.1). The toilet room has sufficient floor space, however the rear grab bar is also only 36" long, less than the 42" minimum required (521 CMR 30.8). In addition, the ramp leading to the toilet room does not include the required handrails on both sides and if a second handrail is installed the clear width will be less than the 48" minimum required (521 CMR 24.3). The top of the ramp is also approximately 47" wide and does not provide the required 60" x 60" turning space necessary at the landing and in front of the door (521 CMR 24.4).
- C ■ If full compliance is required (due to cost of alterations exceeding 30% of the assessed value) additional alterations would be required, including the provision of a compliant ramp or lift to the upper area if it will be open to the public. The toilet room was granted a waiver from the State when installed.
- C ■ The accessible parking space in front of the building is identified by a sign, however it does not have the required marked parking space and access aisle, and in addition the sign is too low (less than 5' min. height required)(521 CMR 23.4.5 &).

3.2 Existing Conditions Report: Town Hall Annex

Architectural Assessment

Architectural Assessment

Type of Construction: CMU load bearing walls, wood truss roof
Year of Construction: 1950's
Latest Addition: 2000
Gross Sq Ft: 2,460 sf

Priority (A-C)

Summary

Exterior Conditions



Roof:

- C ■ South side of roof was replaced within the last 15 years
- A ■ North side is in poor condition
- B ■ Soffit is in poor condition, and the east side of the roof does not have gutters
- B ■ Extent of roof insulation is unknown



Walls:

- B ■ CMU is in overall good condition, except for a settlement crack on the west side
- A ■ Plywood has weathered and in poor condition



Insulation:

- B ■ Batt insulation - extent unknown

3.2 Existing Conditions Report: Town Hall Annex Architectural Assessment



Doors:

- B ■ Good to fair condition



Windows:

- B ■ Good to fair, include thermal glazing

Interior Conditions



Floors:

- B ■ Carpeted areas are in fair to good condition
- B ■ Floors are slab on grade, with no perimeter insulation
- A ■ Water damage evident – particularly in south-west corner. Carpet should be removed and inspected for mold.



Walls:

- C ■ Overall wall condition is good

3.2 Existing Conditions Report: Town Hall Annex

Architectural Assessment

Ceilings:

- C ■ Lay in tiles are in good condition
- B ■ Glued ceiling tiles are fair - poor



Doors:

- C ■ Wood doors and wood frames are in good condition



3.2 Existing Conditions Report: Town Hall Annex

Structural Assessment

Structural Assessment

The Town Hall Annex was constructed in two parts, both in exposed CMU with wood rafter framed gable roofs, with the left side being the older of the two. Originally serving as a multi-bay garage, this structure has been converted to its present use by the infilling and interior finishing of all but the far right garage bay.

Priority (A-C)

Summary

Exterior Conditions



B ■ Eroded mortar joints

The mortar joints in the concrete block wall construction at the front, sides and rear of structure are unusually eroded for a building of this age. The joints have softened and roughened due to weathering, and have in many places been etched out and or expanded, allowing the concrete blocks to shift or de-bond.

The damaged mortar joints should be deeply cut and pointed or grouted as much as the limiting thicknesses of the face shells will allow. Unfortunately, because the concrete blocks are hollow, cutting too deeply will expose the inner cores and the repointing mortar will slough into the holes unless a backer rod is used. If the weakening runs further into the wall thickness, the unsupported masonry above the cut joints may shift. Therefore, this work will need to be done incrementally. This is a Priority Level 2 item.



C ■ Vertical crack at rear

There is a vertical crack in the joint between the original portion of the structure and the addition. The mortar within the joint should be cut out and replaced with sealant and backer rod.

A ■ Diagonal step cracks

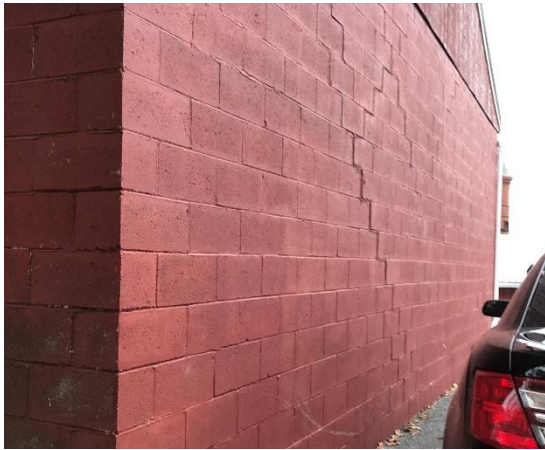
There are numerous and opposing diagonal cracks in CMU wall at left side of structure. These may be from foundation settlement, from corroding metal embedments, or even just from expanding and lifting of badly deteriorating mortar joints. There are also step cracks running upward from the ends of window lintels at the rear wall.

The cracks significantly weaken the wall as they eliminate the wall's shear and bending strength. Unlike eroded mortar joints, the cracks likely run through the full thickness of the wall construction and need to be repaired from both sides.

3.2 Existing Conditions Report: Town Hall Annex

Structural Assessment

This can be done in several ways:



- By removing interior finishes to expose the inner face of the wall and deeply cutting and pointing from the interior and exterior using backer-rods.
 - By removing and re-setting the concrete blocks along one or both sides of the cracks from the exterior.
- or
- By incrementally cutting through the entire thickness of the wall and installing grout filled lozenge type sock anchors from the outside of the wall and then pointing outer surface (this is a proprietary system that this office has developed).

Any rusting metal embedments should be removed.

B ■ Chimney damage

The lower portion of the rear chimney is in very poor condition and the entire chimney needs to be rebuilt.



B ■ Rotted wooden fascias

There are rotted holes in the fascia boards at several locations. The rotted boards should be removed and the supporting blocking and rafter ends should be inspected, treated and repaired as needed, and the fascias should be replaced.

Interior Conditions



B ■ Leakage through at infilled doorways

Water apparently leaks into the interior where wall where doorways have been infilled in the front wall. The infilled openings should be inspected from both sides and properly sealed. The roof edge flashing should also be checked to confirm it is not also a source of damage.

B ■ Cracked window lintel

There is a cracked precast concrete lintel spanning over a window on the east wall. The crack runs horizontally and is likely due to expansive rust in the reinforcing steel. The lintel should ultimately be replaced.



3.2 Existing Conditions Report: Town Hall Annex

Fire Protection Assessment

Fire Protection Assessment

Priority (A-C)

Summary

Exterior Conditions



The building does not have an automatic sprinkler system.

In general, Massachusetts General Law M.G.L. c.148, s.26G requires that any existing building over 7,500 square feet that undergoes **major** alterations or building addition must be sprinklered. Examples of major alterations are demolition or reconstruction of existing ceilings or installation of suspended ceilings; removal of sub flooring; demolition and/or reconstruction of walls, doors, or stairways; or removal or relocation of a significant portion of the building's mechanical or electrical systems. Alterations are considered major when such work affects 33% or more of the building area or when total work (excluding sprinkler installation) is equal to 33% or more of the assessed value of the building.

Due to the building's size, unless a large addition is provided, renovation work to the existing structure would not exceed the thresholds that would require an automatic sprinkler system for this building.

3.2 Existing Conditions Report: Town Hall Annex

Plumbing Assessment

Plumbing Assessment

Priority (A-C)

Summary

Interior Conditions



Executive Summary:

Presently, the Plumbing Systems serving the building are cold water, hot water, and sanitary, waste and vent system. Building is served by on-site well water and a shared septic system.

Fixtures:

There are two bathrooms in the building. One serves the Community Room. The other is located adjacent to the meeting room.

Community Room water closet is floor mounted, tank type, vitreous china. Lavatory is wall hung with manual faucet. Water closet handle is on wrong side of tank and does not meet accessibility code. Lavatory does not have a mixing valve to limit temperature to below 110 deg F.

Meeting Room water closet is floor mounted, tank type, vitreous china. Lavatory is vanity type sink with manual faucet. The room is not accessible.

A Recommend fixtures be replaced. Separate accessible bathrooms should be provided.

A Provide service sink and drinking fountain.



Water Systems:

The building is supplied from one well which serves all four buildings on the Town campus; Library, Bagg Hall, Public Safety Building, and the Annex building. The pressure tank is located in Bagg Hall. The water is supplied from Bagg Hall to the Public Safety Building then to the Annex building.

Piping is copper tubing with sweat joints. Most exposed piping is insulated.

3.2 Existing Conditions Report: Town Hall Annex

Plumbing Assessment



Domestic hot water is generated through an electric tank type water heater. Water heater is located above the ceiling of the bathroom, which is accessible through a wall panel. The system is not equipped with a mixing valve or expansion tank. The hot water system is not recirculated.

- A Recommend installing thermostatic mixing valve on water heater.

Drainage Systems:

Cast iron is used for sanitary drainage. Smaller pipe sizes are copper tubing.

Garage area does not have a floor drain.

It was reported by the staff that there are drainage issues with the below grade piping.

- A Recommend video inspection to confirm integrity and pitch of existing piping. Existing piping can be re-used if in good condition.

3.2 Existing Conditions Report: Town Hall Annex

HVAC Assessment

HVAC Assessment

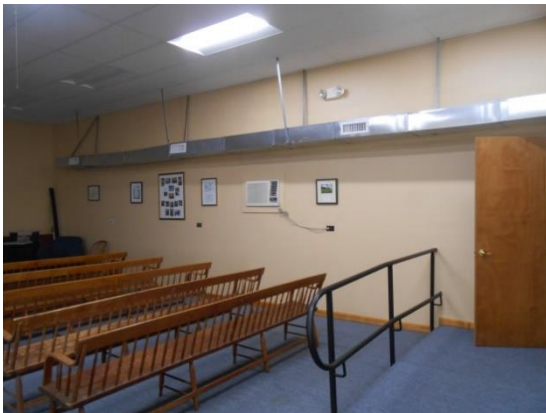
Priority (A-C)

Summary

HVAC Conditions



Through the Wall Air Conditioner



Meeting Room Supply Duct



Meeting Room Oil Fired Hot Air Furnace

Meeting Room:

The meeting room is heated by an oil fired York Model P-H-MX 14F 10001 warm air furnace which supplies warm air to an exposed uninsulated galvanized steel ductwork run down one side of the room (Action Priority B). Air is supplied via sidewall grilles and returns to the furnace via a low wall grille. The furnace can burn 0.75 to 1.0 GPH of kerosene via a Becket burner with an output range of 87 to 116 MBH. The furnace is vented through galvanized sheet metal ducting into the masonry chimney via natural convection. There is also a wall mounted power venter mounted on the wall, however this equipment has not been used in years. The power venter is locked out. The 225 gallon kerosene tank is located outdoors in an enclosure attached to the building. The furnace supplies minimal heat to the police storage bay via an open ended flexible duct. The meeting room bathroom is ventilated by a wall mounted exhaust fan that exhausts to the attic. The meeting room is cooled by two (2) through the wall air conditioners and two (2) ceiling paddle fans. The meeting room is ventilated by operable windows, as the furnace has no source of fresh air.

Recreation Office:

The recreation office and recreation conference room are heated by electric baseboard and ventilated by operable windows. This office does not have air conditioning. The recreation office bathroom is heated by an electric wall heater and exhausted by a ceiling mounted fan/light that exhausts to the attic.

Recommendations:

- C ■ Add wi-fi programmable thermostat to meeting room.
- C ■ Add ventilation system.
- C ■ Add ductless mini-split air conditioners, as they are quieter for meetings than through the wall air conditioners, and are more efficient.

Electrical Assessment

Existing System: Electrical

Size of Service:

200A 120/240V 1Ph 3W Service

The underground service lateral appears to originate in a junction box on the exterior of Bagg Hall adjacent to the utility electric meter. The service lateral then runs underground to Town Hall Annex rising out of grade and up the side of the building in conduit where it terminates in a weather head. The conductors leave the weather head where they splice onto another set of service conductors originating from a separate weather head; these conductors enter the building and terminate at a 200a utility company meter socket.

The 200A meter feeds a 200A panelboard on the load side, this panel provides distribution and branch circuits to the entire facility.

The 200A panelboard feeds a small load center in the larger function room on the other end of the building.

Generator: None

Capacity:

Electric Closet:

- First Floor Garage - The 200A meter socket and 200A panelboard are located adjacent to the garage door.
- First Floor - Contains a small load center in the larger function room on the other end of the building.

Wiring:

Mix of non-metallic sheathed cable and armor-clad cable of various ages and condition.

General Conditions: Fair

Sub-Panels:

First Floor - 100A 120/240V 1-Ph 3W

S-P Locations:

First Floor Meeting Room

Lighting:

Incandescent, Incandescent fixtures with CF lamps (Edison-base), linear 1x4 fluorescent (T-12) and 2x4 LED grid-supported fixtures in Meeting Room.

Receptacles:

Quantity and location is sparse. Grounding type receptacles where noted but suspect some may have inadequate ground based on branch circuit wiring type.

Emergency Ltg:

Plug-in and hard-wired emergency battery units; quantity and coverage does not meet life safety code; all units should be tested for proper operation.

Fire Alarm:

3.2 Existing Conditions Report: Town Hall Annex

Electrical Assessment

The building houses an obsolete wireless smoke detection system with add-on pull stations interfaced and operated through the security system. In the past the system reported to the dispatch annunciator in the Public Safety Building, but this connection has been disabled. The absence of signaling and initiating devices for this public space must meet ADA and NFPA standards for a Public Assembly Building

Smoke Detectors: Observed but not tested

Heat Detectors: None

CO Detectors: (1) ceiling mounted DC CO detector located in garage bay

Audible & Strobe: None

Annunciator Panel: None

PA System: None Observed

Low Volt Systems: Voice, Data, and Security. The storage and access do not meet BICSI standards.

Code Issues: Fire Alarm and Carbon Monoxide Coverage, Emergency Egress Illumination.

Suggested Actions:

Maintain System:

Replace Systems:

- Main Electrical Service, Electrical Distribution & Feeders, Branch Circuiting, Junction Boxes and Receptacles.
- Main Fire Alarm Panel, Signaling and Initiation Devices, Radio Master Box
- Light fixtures - Storage Bay
- Intrusion Detection
- Voice/Data

Add Systems:

CCTV – Remote Access

No Action Req'd:

None. All Systems need updates and or replacement.

Code Compliance:

The Fire Alarm System coverage, emergency egress pathway instructions and emergency lighting does not meet code.

3.2 Existing Conditions Report: Town Hall Annex

Electrical Assessment

Priority (A-C)

Summary

Exterior Conditions



Exterior Lighting:

- B ■ Minimal use of exterior building mounted lighting.

Interior Conditions



Load Center End of Life:

- A ■ Main distribution panel showing signs of corrosion and all circuits assigned.



Honeywell F/A relay panel:

- A ■ Replace relay panel with radio master box.

3.2 Existing Conditions Report: Town Hall Annex

Electrical Assessment

Building Emergency Signaling and Egress Lighting and Signage:



- A ■ Replace Fire Alarm System, means of egress lighting and signage and add initiating devices: smoke, heat, CO and pull stations per code.

LED Lighting:



- C ■ LED fixtures in Meeting Rooms. Replacement of former Garage Bay lighting is a low priority but meaningful step to improved efficiencies.
- C ■ Add lighting control system for assembly area.

Smoke and Heat Detectors:



- A ■ Replace Fire Alarm System initiating devices: smoke, heat, CO and pull stations per code.

3.2 Existing Conditions Report: Town Hall Annex

Electrical Assessment

Load Center:



- A ■ Antiquated Load center recommended for replacement.

Data Center:

- A ■ Add provisions for Projector and local sound system.
- A ■ Add provisions for new telephone and data throughout.

Recommended Actions:

Immediate concerns are for the replacement of the Fire Alarm System, ADA Signaling and Initiating Devices and Radio Masterbox.

Update Tel/Data and Server Room to Building Industry Consulting Services International (BICSI) Standards.

Site Assessment



PRINCETON COMMON SITE



Existing Site Facts

Location:	Btwn Hubbardston Road (Route 62) and Mountain Road (off of Route 31)
Acreage:	2 Parcels make up the Town Hall Complex 0.55 Acre Town Annex + 11 Acre Common
Zoning Classification:	Agricultural Residential Zone
Setbacks:	50 LF Front, 10 LF Side and Rear
Max Building Height:	35 LF or 2.5 Stories
Resource Areas:	None within property boundary
Resource Buffers:	None within property boundary

3.3 Existing Conditions Report: Public Safety Building

Site Assessment

General Existing Site Pros and Cons for Town Common (Bagg + Library+ Annex+ Public Safety)

Site Pros:

- + Town services are collocated on one site
- + Shared well and septic services easier to maintain (1 test, 1 pump)
- + Multiple points of access off of Hubbardston and Mountain Road.
- + Potential to increase visibility/ access to public park behind Town Annex
- + Granite curbing in good condition
- + Wonderful views across common

Site Unknowns:

- Quality of water from well, available gallons per day (gpd), usage of water (gpd)
- Longevity of existing septic system
- Extent of ledge on site, and alternative septic locations if septic system needs replacement

Site Cons:

- Grade changes and circulation patterns may restrict areas for expansion.
- Any expansion into the Common would require bringing in fill due to the ledge on site or navigating extreme changes in grade between the common and upper areas.
- Pavement needs repaving in certain areas
- Pedestrian pavements need replacement
- Depending on gpd usage of water, site improvements or renovation may trigger the requirement to designate the well as a public water supply well. In which case no pavements or buildings could be placed within its zone 1, or a new well may need drilling.
- Depending on staff population, site improvements may require DEP permitting for septic.
- Any improvements to vehicle wash bays may require an industrial waste holding tank/ or tight tank
- Majority of site is within IWPA of two other public water supplies- first congregational church and village store (may still be able to propose improvements, but may need more regulatory oversight).

Public Safety Specific Pros and Cons

Public Safety Pros:

- + Collocated with other Town Services (may be a pro or a con depending on Town's priorities)
- + Radio/Tel/Data tower recently installed and can be utilized if Public Safety moves to Princeton Center site

Public Safety Cons

- Very little room for expansion
- Sight lines turning onto Hubbardston may be challenging
- Functional compatibility with other Town Offices to be determined by town
- ADA parking and access challenging
- Potential conflicts with emergency responders and other pedestrian oriented town functions
- Steep slopes to the west of building

3.3 Existing Conditions Report: Public Safety Building

Site Assessment

- Unknown what the conditions of the soils below the building footprint are—if there are contaminated soils from years of vehicle use.

Priority (A-C): Anticipate dealing with item within A= 0-3 years; B=3-6 years; C=7+ years

Priority (A-C)

Summary

Exterior Conditions



Paving

- B ■ Asphalt Paving has been patched and is cracking in places.

Utilities

- A ■ If improvements provided, may have to install an industrial waste holding tank to collect water from wash bays per DEP requirements.



Coordination with Site Constraints

- A ■ Any improvements may require accessible entrances and modifications to entrances and access per MA Code. Modifications may be challenging accommodating associated utilities and grades.



Accessible Entrances

- A ■ Any improvements may require accessible entrances and modifications to entrances and access per MA Code.

3.3 Existing Conditions Report: Public Safety Building

Code Assessment

Code Assessment

Type of Construction: Hybrid masonry bearing walls, concrete plank, wood framing & roof trusses – Type V
Year of Construction: Unknown
Latest Addition: 1988
Gross Sq Ft: Approx. 6,000
Occupancy: Use Group B (offices), Use Group S-1 (garage)
Assessed Value: This property, along with the Library and Bagg Hall, appear to be combined in overall valuation at \$1,566,000, including land value.

Existing buildings are generally not required to comply with the requirements of the Massachusetts State Building Code (780 CMR) or Massachusetts Architectural Access Board's Regulations (521 CMR) until such time that the building is renovated. The level of compliance with each code is dependent on the scope of the renovation. For the purposes of this review, existing code issues have been prioritized as follows:

Priority A	Immediate concern that must be addressed regardless of whether the building is renovated.
Priority B	Code issues that are likely to have to be addressed for a partial building renovation. A Level 1 or Level 2 Alteration under the International Existing Building Code (IEBC) as adopted by 780 CMR. Renovation cost greater than \$100,000 but less than 30% of the building's assessed value (521 CMR compliance thresholds).
Priority C	Code issues that are likely to have to be addressed for a full building renovation. A Level 3 Alteration under the International Existing Building Code (IEBC) as adopted by 780 CMR. Renovation cost greater than 30% of the building's assessed value (521 CMR compliance thresholds).

Priority (A-C)

Summary

Fire Protection Systems



Sprinkler System:

- Since the building is less than 7,500 sqft. sprinkler protection is not required regardless of the level of renovation (780 CMR Table 903.2, M.G.L. C. 148 Sec. 26G).

3.3 Existing Conditions Report: Public Safety Building Code Assessment



Fire Alarm System:

- C
- The existing fire alarm system lacks notifier (IEBC 804.4.1 Exception), however, improvements are only required if the building is open to the public and the renovation cost exceeds the 30% cost threshold in 521 CMR.

Means of Egress



Stairs:

Both levels of the building are provided with two means of egress that are sufficient for the building's current use.

- B
- For a Level 2 renovation stairs within the work area must be enclosed in 1 hour rated construction (IEBC 803.2). Based on the masonry construction used for the stair enclosure it likely meets this requirement.
- C
- Stair handrails must be altered or replaced with handrails providing the required extensions at the top and bottom of the stair to comply with 521 CMR (521 CMR 27).

3.3 Existing Conditions Report: Public Safety Building Code Assessment



Exit Signs & Emergency Lighting

- B ■ The building exit signs that appear capable of illumination but were not illuminated during the site visit. Existing signs must be repaired or replaced with signs having adequate battery back-up as required for new construction in any renovated areas.



- B ■ Existing emergency lighting fixtures were not tested or evaluated for adequate coverage but may need to be replaced or supplemented in any renovated areas to comply with current code requirements (780 CMR 102.6.4).

Accessibility



The existing building does provide public access on the Police side via a monitored vestibule that can be used as a safe haven for a member of the public should they arrive at the police station in distress, however, that vestibule is not at grade. Accessible access is available through the back door of the building. Additionally, the fire department office may receive members of the public.

- B ■ The existing rear entrance door is at grade and wheelchair accessible. However there is grade leading to the door and no accessible route from an accessible parking location to the door. If renovation costs exceed \$100,000 and this door remains a public entrance an accessible route from the door to an accessible parking location must be created.

3.3 Existing Conditions Report: Public Safety Building Code Assessment



C

- If full compliance is required (due to cost of alterations exceeding 30% of the assessed value) alterations would be required to all areas open to the public, which may only include the rear entrance vestibule and fire department offices. The fire department entrance exterior steps are not accessible; a ramp would be required.

3.3 Existing Conditions Report: Public Safety Building

Architectural Assessment

Type of Construction: Hybrid of masonry bearing walls, wood stud framing, concrete plank, wood roof trusses
 Year of Construction: unkown
 Latest Addition: 1988
 Gross Sq Ft: 6,455 GSF

Priority (A-C)

Summary

Exterior Conditions



Roof:

- A ■ Asphalt shingles on police station. There is batt insulation at the bottom cords of the roof trusses. The asphalt roof is over 25 years old. It needs to be replaced.
- C ■ Metal roof on fire station with aluminum gutters and leaders. The metal roof is in very good condition.
- A ■ There are severe ice dams on the north side of the fire station as reported by HKT.



Walls:

- A ■ Painted Wood Clapboard. Fair to poor condition. Wood clapboards are splitting and peeling.
- B ■ Painted CMU. Fair condition. Paint peeling in some locations
- C ■ Metal Siding. Excellent condition
- B ■ Exposed concrete. Fair condition
- A ■ Trim. Poor condition



Insulation:

- B ■ Batt insulation in addition only. Not evenly applied
- C ■ New rigid insulation added under new metal siding at fire station.

3.3 Existing Conditions Report: Public Safety Building

Architectural Assessment



Doors:

- B ▪ Overhead doors in apparatus bays. The overhead doors have a gap at the floor and are rusting at the sills.
- B ▪ Insulated hollow metal doors in pressed metal frames. The egress door interior stairway does not close properly. There is daylight between the metal frame and the wall.



Windows:

- C ▪ Double hung and awning. Good condition given their age.

3.3 Existing Conditions Report: Public Safety Building

Architectural Assessment

Interior Conditions



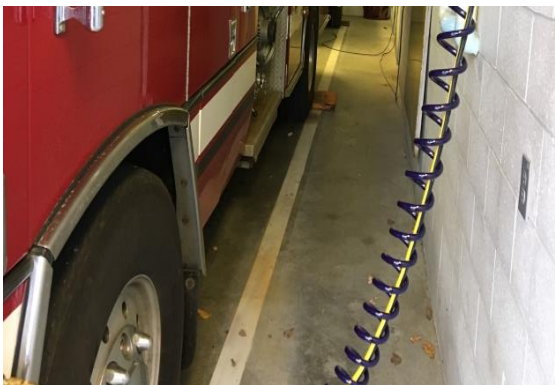
Floors:

- C ■ VCT in the Police Station in fair condition
- A ■ Concrete in Police Garage. Allowing water into basement below.
- C ■ Rubber tile in Fire Station Office. Good Condition
- B ■ Concrete in vehicular bays. Cracked and showing wear, but not an immediate concern.



Walls:

- C ■ Gypsum wall board in police. Good condition
- C ■ Painted CMU & GWB in fire. Good condition
- A ■ Concrete walls in basement. Poor condition – see above.



3.3 Existing Conditions Report: Public Safety Building Architectural Assessment

Ceilings:

- C ■ Plaster skim coat in Police. Good condition.
- A ■ GWB in the vehicle bays on the first floor. Some water damage. Also sagging in places. See Structural Report



Doors:

- C ■ Flush wood doors in metal frames. Good condition. Several doors are not ADA compliant – due to hardware and/or door clearances.
- C ■ Flush metal doors in metal frames. Good condition.



3.3 Existing Conditions Report: Public Safety Building

Structural Assessment

Structural Assessment

The Police Station was constructed in two stages. The original building is a wood framed, gabled roof structure with three garage bays and an office at its right end. Foundations appear to be of concrete block (CMU) construction, with the garage bay floors concrete slabs on grade. The walls and roof are framed of board sheathed dimensional lumber, with the roof peak supported by a long wood framed truss.

The later structure, which actually houses the police department, was constructed at the left side of the garage. The first floor consists of CMU wall construction landing on concrete foundations with a combination cast-in-place concrete and precast concrete second floor structure. A residential-style wood framed structure was constructed on top of the concrete structure, providing a second floor and attic space above. This added structure includes a single bay police garage stall over an enclosed basement “vault” space at the rear.

Priority (A-C)

Summary

Exterior Conditions



- A
- Roof sags over garages due to truss overstress
- The roof of the garage 3-bay section of the police station sags noticeably at the ridgeline due to the overstress and deflection of the supporting truss (please see “Interior”/ below).



- B
- Rotted wooden fascias
- There are rotted holes in the fascia boards at several locations. The rotted boards should be removed and the supporting blocking and rafter ends should be inspected, treated and repaired as needed, and the fascias should be replaced.



- B
- Settlement crack
- There is a vertical crack running through the concrete block portion of the left wall, crossing a window. This is probably due to some minor settlement and has presumably stabilized by now. The crack should be spanned with flexible sealant and monitored for further movement

3.3 Existing Conditions Report: Public Safety Building

Structural Assessment

Interior Conditions



B ■ Ingress of water running downhill from rear

The ground slopes generally upward from behind building and there is an excavated areaway along the back wall that collects it. This collected water appears to percolate inward through the foundation and the lower portion of the back wall. The areaway should be excavated and the foundation and building face positively waterproofed and drained. The areaway should also be given its own area drain to prevent overflow.

A ■ Severe chloride damage below police garage bay

There is a reinforced concrete basement “vault” space below the police garage bay, which is at the upper level. Salt laden water drips off of the vehicles onto the concrete garage floor and seeps down into the structure below it, creating elevated chloride conditions in the concrete. The chlorides cause accelerated corrosion in the reinforcing steel, which is aggressively oxidizing and cracking and spalling the concrete. The humidity within this space also feeds the corrosion, which will eventually degrade the concrete structure to the point that is unusable.

A waterproof parking deck type floor membrane should be installed on the floor of the garage bay along with proper drainage in order to stop the infiltration. The cracked and spalled portions of the concrete should be chipped away and the rusting reinforcing should be cleaned and rust coated. The removed concrete should then be patched back and the space mechanically dehumidified to prevent further corrosion. The chloride infused concrete will always have an affinity toward rebar corrosion, and keeping it dry will always be critical.

C ■ Multiple cracks in floor slabs

There are shrinkage and minor settlement cracks in the concrete floor slabs of the garage bays. While these are not of serious structural concern, they should be filled with fine grout to prevent shifting under wheel loads. There is also a patch in the front left corner of the left garage bay that appears to be settling under wheel loads. This will eventually need to be replaced.

A ■ Truss deformation and overstress

The continuous truss that runs under the ridgeline over the three garage bays has been jacked and re-supported at one bay into its left span end with a new timber post and

3.3 Existing Conditions Report: Public Safety Building

Structural Assessment



clamping channel columns. Unfortunately, while this helps lift one end of the truss and shorten the span, the truss's top chord is still grossly undersized for the compression and bending load on it, and remains deflected by several inches, allowing the roof's ridgeline to sag noticeably and the eaves to bow out.

In addition to the overstressed chord, the other truss members are also undersized and their nailed connections suspect.

The entire truss must be significantly reinforced, or even sistered or replaced. This could be most efficiently achieved bolted steel members that are assembled and connected in place. The roof ridge should be jacked upward during the installation and the ceiling removed and the eaves pulled in.



Because of the importance of the spaces below, the extreme deformation that has occurred and the potential severity of winter snow, this should be considered an URGENT condition.

3.3 Existing Conditions Report: Public Safety Building

Fire Protection Assessment

Fire Protection Assessment

Priority (A-C)

Summary

Exterior Conditions



The building does not have an automatic sprinkler system.

In general, Massachusetts General Law M.G.L. c.148, s.26G requires that any existing building over 7,500 square feet that undergoes **major** alterations or building addition must be sprinklered. Examples of major alterations are demolition or reconstruction of existing ceilings or installation of suspended ceilings; removal of sub flooring; demolition and/or reconstruction of walls, doors, or stairways; or removal or relocation of a significant portion of the building's mechanical or electrical systems. Alterations are considered major when such work affects 33% or more of the building area or when total work (excluding sprinkler installation) is equal to 33% or more of the assessed value of the building.

- A** If the proposed project scope exceeds these thresholds then the existing building, and its additions if applicable, will require installation of an automatic sprinkler system and new fire alarm system.

3.3 Existing Conditions Report: Public Safety Building

Plumbing Assessment

Plumbing Assessment

Priority (A-C)

Summary

Interior Conditions



Executive Summary:

Presently, the Plumbing Systems serving the building are cold water, hot water, sanitary, waste and vent system, and LP gas. Building is served by on-site well water and a shared septic system.

Fixtures:

The water closets are floor mounted, vitreous china, tank type.

Lavatories are wall hung vitreous china with manual faucets. Lavatories do not have a mixing valves to limit temperature to below 110 deg F.

At time of visit, the majority of lavatories were out of order due to poor drainage. Owner has performed work on existing drainage system to correct issue.

Service sink is a molded stone laundry tub with deck mounted faucet. At time of visit, the sink was out of order due to poor drainage.



- A Recommend all fixtures be replaced. Provide accessible public and staff facilities.
- A Provide mixing valves at lavatories to limit hot water temperature to 110 deg. F.
- A Provide new service sink and drinking fountain.

3.3 Existing Conditions Report: Public Safety Building

Plumbing Assessment



Water Systems:

The building is supplied from one well which serves all four buildings on the Town campus: Library, Bagg Hall, Public Safety Building, and the Annex buildings. The pressure tank is located in the basement of Bagg Hall. The water is supplied from Bagg Hall to the Public Safety Building, then to the Annex building. There is a well water circulation loop that circulates water from Bagg Hall and the Public Safety building in order to prevent freezing during winter season.

Domestic water piping is copper tubing with sweat joints. In general, the piping is insulated.

Domestic hot water is generated through an electric tank type water heater. Water heater is located in the lower level mechanical room. Water heater has a 40 gallon capacity and was manufactured in 2010. The system is not equipped with a mixing valve or expansion tank. The hot water system is not recirculated.

There are two pendant sprinkler heads located in the Mechanical Room which are supplied from the domestic water system. There does not appear to be a backflow preventer on the supply.

- A Recommend installing thermostatic mixing valve and hot water circulator on water heater.
- A Provide backflow preventer on supply to sprinkler heads.
- A Provide backflow preventer on supply to hose valves in Apparatus Bays.



3.3 Existing Conditions Report: Public Safety Building Plumbing Assessment



LP Gas:

There is an aboveground 1,000 gallon exterior LP gas storage tank located behind the Annex which supplies the Public Safety Building generator.

There is an aboveground 57 gallon exterior LP gas storage tank located outside the Fire Station office which supplies the gas fired stove.

Gas piping appears to be in good condition.



Drainage Systems:

Cast iron is used for sanitary drainage. Smaller pipe sizes are copper tubing. Where visible piping appears to be in good condition.

Garage/Apparatus areas do not have floor drains or drains have been plugged.

It was reported by the staff that there are drainage issues with the below grade piping.



- A Recommend video inspection to confirm integrity and pitch of existing piping. Replace all poor draining sanitary piping.
- A Provide floor drains in garage areas. Drains to discharge to an exterior industrial waste holding tank.

3.3 Existing Conditions Report: Public Safety Building

HVAC Assessment

HVAC Assessment

Priority (A-C)

Summary

HVAC Conditions



Oil Fill & Vent to be Extended



Police Station Utility Room Missing Ceiling Exhaust Fan



Police Station Air Conditioning Air Handler

Heating Plant:

There are two heating plants in the building, an oil fired hot water boiler and an oil fired warm air furnace. The hot water boiler heats most of the building, as it serves the police station, fire department office, and the long engine bay. The warm air furnace serves the ambulance and main engine bays. The boiler is a Peerless Model WBV-03-110-WPCL cast iron hot water boiler firing 1.1 GPH of #2 fuel oil through a Beckett power burner providing a gross output of 129 MBH and a net IBR of 112 MBH (Action Priority C). The boiler is provided with a dual low water cut-off and all operating and safety controls. Fuel oil is stored in two 275 gallon basement fuel tanks. The boiler is vented to a masonry chimney via a single wall galvanized stove pipe. Hot water is circulated to the building via three zones, each controlled by a Taco in-line pump (Action Priority C). Heating hot water is supplied to cabinet unit heaters, horizontal unit heaters and baseboard radiation via a mixture of steel & copper piping insulated with fiberglass insulation.

The warm air furnace is a Metromatic Model 200 LB firing 1.65 GPH of #2 fuel oil through a Beckett power burner providing 200 MBH of heating output (Action Priority B). The furnace is vented to a masonry chimney via single wall galvanized stove pipe. Warm air is supplied to the engine bays via short runs of uninsulated galvanized ductwork tied into wall grilles. Wall openings in the engine and ambulance bays provide a path for the return air to get back to the boiler room, as the boiler room functions as a plenum for the open return on the furnace. Combustion air is supplied to the boiler room via a wall louver tied into a 30"x10" open ended combustion air duct that terminates 18" AFF. The combustion air duct has only a manual damper. There is no motorized damper installed that closes when combustion air is not required.

3.3 Existing Conditions Report: Public Safety Building

HVAC Assessment



Police Station Air Conditioning Condensing Unit



Public Safety Oil Fired Hot Water Boiler



Fire Station Oil Fired Furnace w/ Distribution Ductwork

Police Station:

The offices of the police station are heated by hot water baseboard radiation. The hallways and stairwells are heated by hot water cabinet unit heaters controlled by self-contained valves. The garage is not heated or ventilated. The police station is cooled by a Rudd Model UBHC 14A00NFA 1/6 HP 2 ton central A/C split system air handler paired with a Rudd Model UAKB-024JAZ R-22 condensing unit (Action Priority B). This system was installed around 2007 to counteract excessive heat loads from radio and communications equipment from the Dispatch Area that was previously located in the Public Safety Building. Three (3) window AC units are seasonally installed for comfort cooling duty in the southern offices because the Rudd unit does not satisfactorily condition these offices. Conditioned air is supplied to ceiling diffusers via insulated galvanized steel ductwork run in the attic. Air is returned to the air handler via a single central ceiling grille. There is no fresh air ducted to the air handler. Station ventilation is handled via operable windows. The air handler is controlled via a programmable thermostat located near the main return. Bathrooms are ventilated by ceiling exhaust fans. The exhaust fan is missing in the utility closet. Some rooms have no ventilation or functioning exhaust like the locker room. In the hallway across from the old dispatch room is an abandoned in place nonfunctioning wall mounted ductless air conditioner.

Fire Station:

The main office is heated by hot water baseboard radiation and cooled by a window air conditioner. Ventilation is via operable windows. The bathroom and back rooms off the main office are also heated by hot water baseboard radiation. There is no ventilation or exhaust in the bathroom or back rooms. The only other portion of the fire station heated by the boiler is the long engine bay, which is heated by a horizontal hot water unit heater. The main engine bay and ambulance bay are heated by a warm air furnace through wall grilles. There is no ventilation or exhaust in the engine bays. The Fitness Center is heated and cooled by a Mitsubishi 2 ton wall mounted heat pump with a Mitsubishi Model MUZ-GL24NA R-410A condensing unit mounted on the fitness center exterior wall (Action Priority C). Auxiliary heat is via an electric unit heater. There is also an auxiliary portable console air conditioner that ducts hot condenser air out a window. The auxiliary heating and portable console AC unit were disconnected when the Mitsubishi system was

3.3 Existing Conditions Report: Public Safety Building

HVAC Assessment



Fitness Room Condensing Unit

installed in Fall 2017. There is no ventilation in the fitness center other than minimal operable windows. The emergency communications/oil tank room is heated and cooled by a Mitsubishi Model MSZ-GL18NA 1.5 ton wall mounted heat pump with a Mitsubishi Model MUZ-GL18NA R-410A condensing unit mounted on the communications room exterior wall (Action Priority C).

There is no ventilation in the communications room or in the adjacent electrical rooms.

Recommendations:

- A ■ Raise oil tank vent.
- A ■ Add a motorized damper on the combustion air duct to save energy.
- A ■ In the police station, replace the utility closet ceiling exhaust fan and other inoperable ceiling exhaust fans.
- A ■ Add an exhaust fan to the fire station bathroom.
- B ■ Add fresh air duct to police station air handler.
- C ■ Add ductless mini-split air conditioner to fire station office.
- C ■ Add central ventilation system to the police station with the energy recovery unit located in the attic with ductwork run in attic. Add high-efficiency air conditioning system to replace window AC units that are seasonally installed.
- A ■ Existing Boiler and furnace combustion exhaust piping require repairs, including sealing the pipes and securing their connection to masonry opening.

Electrical Assessment

Existing System: Electrical

Size of Service:

400A 120/240V 1Ph 3W Service

400A Underground Service from utility pole to 400A meter socket located in the main electrical room on the first floor of the Public Safety Building. The load-side of the meter feeds a 400A Main Distribution Panel MDP. The bus of MDP is tapped to feed a 225A enclosed circuit breaker which feeds a Kohler ATS. The Load side of the ATS feeds emergency (stand-by) panel A. Emergency (standby) panel A feeds miscellaneous loads throughout the building -boiler, bathroom & kitchen lights, fire alarm panel, phone system, door controls, radio dispatch area, etc. Emergency (stand-by) panel A also feeds an adjacent Powerware 9170+ UPS, maintenance bypass switch and power distribution unit. The UPS feeds the clock system, admin, printer and BB quad outlets.

The emergency side of the ATS is fed from exterior propane-fired generator.

Generator:

Exterior propane-fueled 35kW

Capacity:

Electric Closet:

First Floor Normal Electrical Room - Contains the following equipment:

- Utility Meter
- Main Distribution Panel MDP
- Fire Alarm Control Panel (FACP) - Simplex 4100
- Security Panel - Fire Burglary Instruments, Inc. - Star XL 4612
- IT Backboard and Equipment

First Floor Emergency (Stand-By) Electrical Room - Contains the following equipment:

- 225A Enclosed Circuit Breaker
- Kohler Automatic Transfer Switch
- Emergency (Stand-By) Panel A
- Uninterruptible Power Supply - Powerware 9170+
- UPS Maintenance Bypass Switch
- UPS Power Distribution Unit

Second Floor - Emergency Panel B located in a small electrical closet in the Police garage.

Wiring: Mix of conduit and armor-clad cable of various ages and condition.

General Conditions: Fair

Sub-Panels: First Floor: 400A Emergency Distribution Panel B and Subpanel A

Second Floor: 225A Emergency Panel B

S-P Locations:

First and Second Floor

3.3 Existing Conditions Report: Public Safety Building

Electrical Assessment

Lighting:

Incandescent, Incandescent fixtures with CF lamps (Edison-base), linear fluorescent (T-12) and 4-ft LED Strips in Apparatus Bays.

Receptacles: Grounding type receptacles where noted.

Emergency Ltg:

Hard-wired emergency battery units; quantity and coverage does not meet life safety code; all units should be tested for proper operation. Sample testing noted bulbs and or unit battery were not working.

Fire Alarm: Simplex 4100 hardwired by zone.

Smoke Detectors: Observed but not tested

Heat Detectors: Yes

CO Detectors: Yes – Garage Bay only

Audible & Strobe: Yes

Annunciator Panel: None

PA System: None Observed

Low Volt Systems:

Voice, Data, and Security. The storage and access does not meet BICSI standards.

Code Issues: Emergency Egress Illumination.

Suggested Actions:

Maintain System:

- Main Electrical Service, Electrical Distribution & Feeders, Branch Circuiting, Junction Boxes and Receptacles.
- Emergency and or Stand-By Generator, ATS, Distribution & Feeders

Replace Systems:

- Main Fire Alarm Panel, Signaling and Initiation Devices, Radio Master Box
- Light fixtures – Offices and Former Dispatch to include Egress Lighting
- Intrusion Detection – Unless staffed 24-7
- Voice/Data – Network with Town Hall

Add Systems:

Audio Visual Infrastructure – Roll Call Room

No Action Req'd:

None. All Systems need updates and or replacement.

Code Compliance:

The Fire Alarm System coverage, emergency egress pathway instructions and emergency lighting does not meet code.

3.3 Existing Conditions Report: Public Safety Building Electrical Assessment

Priority (A-C)

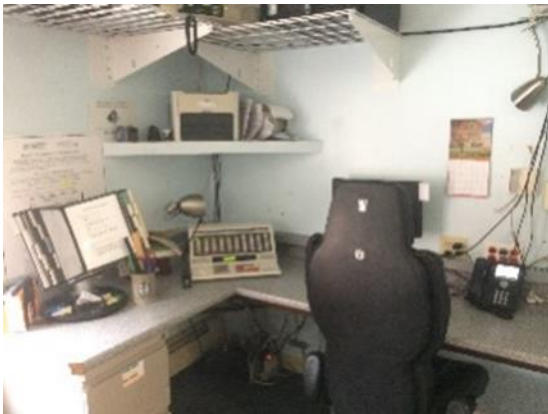
Summary

Interior Conditions



Load Center Upper Floor:

- C
- Sample of updates being made to load centers.



Office Lighting:

- B
- As a matter of energy savings and improved efficiencies with lamp maintenance and ballast replacements, a continuous plan of replacing all incandescent, CFL and fluorescent-tube lamps with LED is recommended



Dispatch (Former):

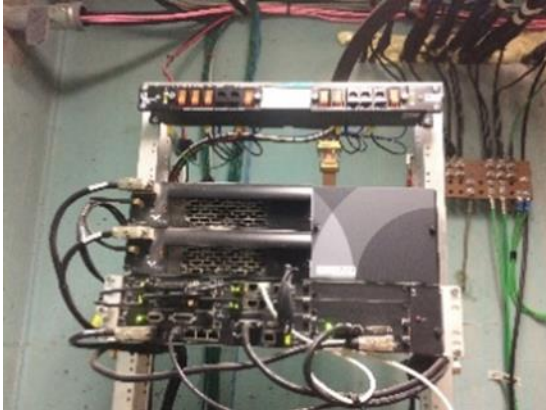
- B
- As a matter of energy savings and improved efficiencies with lamp maintenance and ballast replacements, a continuous plan of replacing all incandescent, CFL and fluorescent-tube lamps with LED is recommended.

3.3 Existing Conditions Report: Public Safety Building

Electrical Assessment

Radio Room:

- C
- Sample of Radio Room updates made to accommodate technology improvements.



LED Strip Apparatus Bays:

- C
- Sample of fluorescent-tube to LED fixture replacement as a low priority but meaningful step to improved efficiencies.



Stand-by PWR Outlets:

- C
- Adequate access to standby power generator.



Lighting – Police Garage:

- B
- Police Chief reported that the lighting in the garage works sporadically and requires replacement.

3.3 Existing Conditions Report: Public Safety Building

Electrical Assessment



Stand-by Generator:

- A
 - Standby Generator is scheduled for replacement. Phil Connors reports that propane storage tank and generator output are undersized for this building to continue emergency/first responder coverage during periods of lost or interrupted power.



Egress Lighting and Fire Alarms:

- A
 - Replace Fire Alarm System, means of egress lighting and signage and add initiating devices: smoke, heat, CO and pull stations per code. Batteries in this unit were unresponsive to testing.

Recommended Actions:

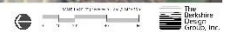
Immediate concerns are for the replacement of the Fire Alarm System, ADA Signaling and Initiating Devices and Radio Masterbox.

Update Tel/Data and Server Room and Hardware.

Site Assessment



PRINCETON CENTER SITE



Existing Site Facts

Location: 18 Boylston Ave/ Cemetery Road

Acreage: 4.5 Acres

Zoning Classification: Agricultural Residential Zone

Setbacks: 50 LF Front, 10 LF Side and Rear

Min Frontage: 225 LF

Max Building Height: 35 LF or 2.5 Stories

Resource Areas: None within property boundary

Resource Buffers: 100' Wetland Buffer for Wetland to the West of Property falls within parcel

Existing Site Pros and Cons

Site Pros:

- + Two points of access off of Boylston Ave
- + Relatively flat
- + Room behind existing building for expansion
- + Lots of space
- + Potential pedestrian trail connection (non ADA) through adjacent parcel to Town Hall parcel

Site Unknowns:

- Quality of water from well
- Remaining life span of well
- Remaining life span of septic
- Amount of ledge

Site Cons:

Different finish floor elevations within existing building complicate accessible access

Existing Site Priorities

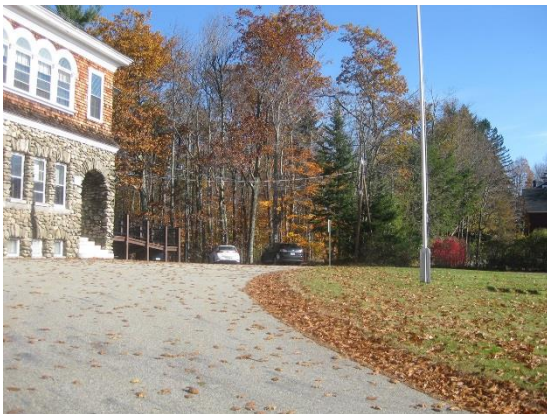
Overall, the longevity of the site water and septic systems are unknown. Once improvements are proposed to the building it may trigger bringing site systems up to code/ construction of new systems.

Priority (A-C): Anticipate dealing with item within A= 0-3 years; B=3-6 years; C=7+ years

Priority (A-C)

Summary

Exterior Conditions



Paving – Front of Building

- B ■ Existing Paving may need replacement in 3-6 years.

3.4 Existing Conditions Report: Princeton Center

Site Assessment



B Septic

Sewer Treatment:

Septic System with leaching field

- Existing Septic Field has been pumped on a regular basis. Longevity is unknown.

- A
- If uses change within the building, changes may need to be made to existing septic system. If drains in boiler room or wash bays proposed, new industrial waste holding tank may be required.

Water Sources



- B
- Water Sources: 15 year old well; 200-225 ft. Artesian 6" well under the gymnasium, believe less than 2-5 GPM. Water Treatment: pH adjustment with soda ash. Water has not been tested for water quality.

- A
- If additions/ renovations well may require meeting DEP standards, such as a new well with a Zone 1 outside of pavements or building footprints.



ADA Parking

- A
- ADA Parking spaces may need to be modified to bring up to code with any new improvements.

3.4 Existing Conditions Report: Princeton Center

Site Assessment



Accessibility Generally

- A ■ Many levels within the building aren't accessible in spite of ADA ramp



Pavements – Rear of Building

- A ■ Pavements at the rear of the building may need replacement within 0-3 years. Some erosion taking place at the top of slope.



Play Equipment

- A ■ Play Equipment no longer meets safety guidelines. Top bar on one of swings is broken.

3.4 Existing Conditions Report: Princeton Center

Site Assessment



Site Furnishings Generally

- B ■ Fair to poor
- A ■ Many of the site furnishings are nearing the end of life.



Exterior Stairs

- A ■ Don't meet accessibility requirements for railings



Ball Fields

- C ■ Good Condition overall

3.4 Existing Conditions Report: Princeton Center

Code Assessment

Code Assessment

Type of Construction: Wood frame – Type V
Year of Construction: 1906, Gymnasium 1936
Latest Addition: 1977
Gross Sq Ft: 15,779 sf
Occupancy: Use Group B (offices and community classrooms), Use Group A-3 (gym)
Assessed Value: \$403,300

Existing buildings are generally not required to comply with the requirements of the Massachusetts State Building Code (780 CMR) or Massachusetts Architectural Access Board's Regulations (521 CMR) until such time that the building is renovated. The level of compliance with each code is dependent on the scope of the renovation. For the purposes of this review, existing code issues have been prioritized as follows:

Priority A	Immediate concern that must be addressed regardless of whether the building is renovated.
Priority B	Code issues that are likely to have to be addressed for a partial building renovation. A Level 1 or Level 2 Alteration under the International Existing Building Code (IEBC) as adopted by 780 CMR. Renovation cost greater than \$100,000 but less than 30% of the building's assessed value (521 CMR compliance thresholds).
Priority C	Code issues that are likely to have to be addressed for a full building renovation. A Level 3 Alteration under the International Existing Building Code (IEBC) as adopted by 780 CMR. Renovation cost greater than 30% of the building's assessed value (521 CMR compliance thresholds).

Priority (A-C)

Summary

Fire Protection Systems



Sprinkler System:

- B ■ If more than 50% of an individual floor is reconfigured, sprinkler protection is required within the reconfigured area only, unless it can be demonstrated that the available water supply is not sufficient for the design of a sprinkler system without a fire pump (IEBC 804.2.2).
- C ■ Sprinkler protection is required throughout the building, unless it can be demonstrated that the water supply is not sufficient (MGL C. 148 Sec. 26G)

Fire Alarm System:

- A ■ The fire alarm system is currently not functioning properly and per order of the fire department must be repaired or replaced before the building can be re-occupied.
- C ■ If a new sprinkler system is required as discussed above, a new fire alarm system must be installed to properly monitor the sprinkler system and provide alarms throughout the building (780 CMR 903.4.2).

3.4 Existing Conditions Report: Princeton Center

Code Assessment

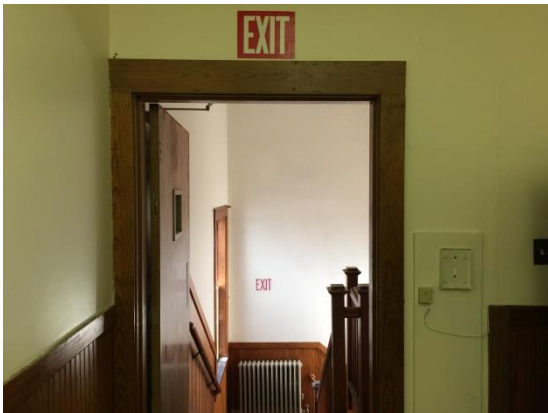
Means of Egress



Stairs:

Although the existing stairs do not comply with all of the dimensional requirements for new construction, regardless of the level of renovation they do not have to be brought into full compliance (other than potentially handrails and nosings as discussed below).

- B ■ For a Level 2 renovation stairs within the work area must be enclosed in 1 hour rated construction (IEBC 803.2). Although if the building is fully sprinklered a rated enclosure for the stairs is not required (IEBC 803.2 Exception 5).
- C ■ A Level 3 renovation requires full enclosure of all stairs in 1 hour rated construction at all levels, unless the building is full sprinklered (IEBC 903.1). All stair handrails and nosings must be altered or replaced to comply with 521 CMR (521 CMR 27).



Exit Signs & Emergency Lighting

- B ■ The building includes non-illuminated exit signs throughout. Illuminated exit signs with battery back-up must be provided as required for new construction in any renovated areas.
-
- B ■ Existing emergency lighting fixtures were not tested or evaluated for adequate coverage but may need to be replaced or supplemented in any renovated areas to comply with current code requirements (780 CMR 102.6.4).



3.4 Existing Conditions Report: Princeton Center

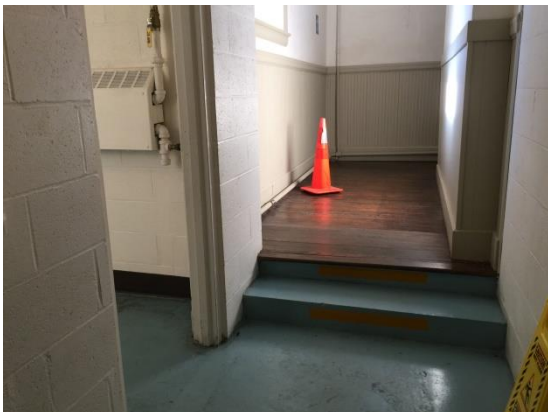
Code Assessment

Accessibility



The existing building includes a ramp at the main entrance and accessible toilet room on the first floor. The remainder of the building is generally not accessible.

- B ■ The existing ramp is generally compliant, however the clear width between handrails in some locations is as narrow as 46.5", less than the 48" minimum required (521 CMR 24.3). The side grab bar in the accessible toilet room is also only 36" long, less than the 42" minimum required (521 CMR 30.8).
- C ■ If full compliance is required (due to cost of alterations exceeding 30% of the assessed value) significant alterations would be required including the addition of an elevator or multiple elevators and lifts to provide wheelchair access to all floor levels. All toilet rooms and entrances would also have to be made accessible. The existing Basement toilet rooms are not accessible and the route leading to them includes various changes in level.



3.4 Existing Conditions Report: Princeton Center

Architectural Assessment

Architectural Assessment

Type of Construction: Wood frame
Year of Construction: 1906, Gymnasium 1936
Latest Addition: 1977
Gross Sq Ft: 15,779 sf
Historic Status: Listed as a contributing building in the Princeton Center Historic District expansion.

Priority (A-C)

Summary

Exterior Conditions



Roof:

- A ■ The roof was repaired in 2012, but no roof barrier was installed - ice dams occur and cause water damage to the windows.
- A ■ Roofing paper has deteriorated and roof is not weather tight



Walls:

- B ■ Areas of original wood shingles are in fair to poor condition. Areas that have recently been repaired look good. Some areas still need repair.
- B ■ South side - wood trim is in fair condition.
- A ■ North side - wood trim is in poor condition.



Insulation:

- B ■ Blown in fiberglass. Looks to be in good shape
- A ■ Additional air sealing needed

3.4 Existing Conditions Report: Princeton Center

Architectural Assessment

Doors:

- B ■ Front doors are most likely original; one has been modified and is not operable.
- B ■ Overall exterior door conditions are fair



Windows:

- B ■ Fair to poor
- A ■ Windows are drafty, some joints are exposed, many sashes need to be replaced
- B ■ Windows added in 1977 did little for thermal insulation



3.4 Existing Conditions Report: Princeton Center

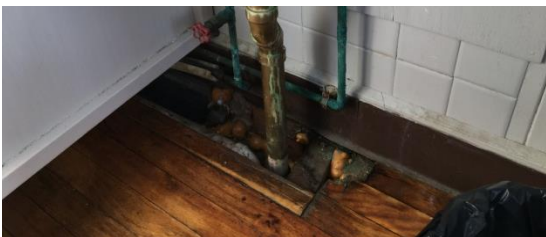
Architectural Assessment

Interior Conditions



Floors:

- B ■ Fair to poor
- A ■ The floors are uneven in many places, resulting in doors not being square.



Walls:

- B ■ Overall condition of interior walls is good to fair



Ceilings:

- B ■ Fair to poor
- A ■ Water damage can be seen on second floor, paint is peeling in several locations due to the original calcimine painted plaster ceilings



3.4 Existing Conditions Report: Princeton Center

Architectural Assessment

Doors:

- B ■ Mostly original doors in fair condition - many not square



3.4 Existing Conditions Report: Princeton Center

Structural Assessment

Structural Assessment

Princeton Center is a former school building with two stories, a full basement and an attic. The front portion of the school is original construction, with wood framed floors and a wood framed multi-hip roof. Exterior walls are composed of board sheathed dimensional lumber studs above the first floor level, with a fieldstone veneer up to the second floor. Foundations consist of solid fieldstone construction with a one-sided CMU veneer at the basement interior.

An addition was constructed at the rear that contains a small gymnasium at the basement and first floor levels and classrooms above. The roof of this addition overlaps the original.

A small science wing was subsequently constructed against the left side.

Priority (A-C)

Summary

Exterior Conditions



C ■ Scattered masonry deterioration

There are randomly scattered pits and small cracks in mortar joints on fieldstone portion of the exterior. These are from a combination of early workmanship, shrinkage in the original mortar, and, to a greater extent, weathering deterioration. The pits should be filled, all softened mortar cut out and replaced, and the cracked joints should be cut and repointed. Roofing paper has deteriorated and roof is not weather tight.



B ■ Loosened stones

There are some loosened stones at the corners of front foundation wall. These should be removed and re-set.

B ■ Crack in stonework

There is a crack running through the stonework directly over right front door arch. Any loose stones along this crack should be removed and re-set, and the crack should be jet cleaned, pointed and injection grouted.

B ■ Chimney damage

There is some weather related joint erosion and some loose bricks at top of main chimney. The loose bricks should be re-set and the eroded joints cut and pointed.



B ■ Bowing eaves

The left and right eaves of the rear addition bow outward. This relates to roof framing conditions at the attic interior.

3.4 Existing Conditions Report: Princeton Center

Structural Assessment



B ■ Sagging roofs

The roof surfaces of the rear addition and science wing sag. The roof framing of the addition is visible from below and appears to be lightly constructed. The framing over the science wing are hidden by finishes but assumed to be lightly constructed as well.

Interior Conditions



B ■ Separating basement wall surface

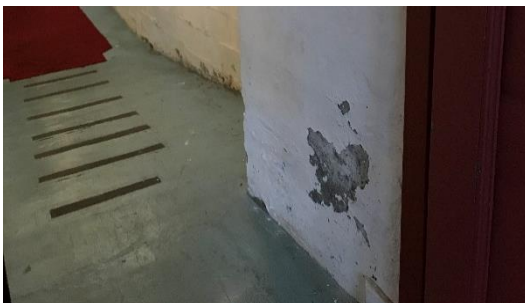
The concrete block finish that provides the interior facing of the left basement is separating from the structural fieldstone backing. This is evidenced by a pronounced bulge in the CMU and a vertical sag. The sag may be a result of insufficient bearing or vertical support and the outward bulge is due to the CMU's delamination, which may have been initiated by the vertical movement.

The CMU should be removed and replaced with new CMU or cast concrete that is properly supported and pinned to the structural backing wall. South side - wood trim is in fair condition.

B ■ Basement water damage

The basement wall and ceiling finishes have been damaged by water infiltration at the following locations:

- At the back end of the left side hallway
- At the heads of the repeating basement windows.



Both of these conditions are likely to be from water that has seeped through the windows and wall structures above, since they occur below suspect areas at the first and second floor.

B ■ First and second floor water infiltration

We were told during our site visit that there are frequent ice dams at the building eaves and associated water infiltration at the repeating windows of the first and second floors below the eaves. While no outward sign of significant wall finish damage was visible, other than some staining, the sills

3.4 Existing Conditions Report: Princeton Center

Structural Assessment



of several of the windows are uneven as the mullions between windows appears to be compressing into them at the left side, first floor. This compression may be caused by normal drying shrinkage in the wood, but could also be caused by hidden rot or at least softening, due to the water saturation.

The framing below the suspect areas should be exposed and inspected, and repaired or replaced if needed.

The ice damming and water leakage should be addressed at the exterior.



B ■ Sloping landing

The second floor stair landing slopes toward left rear stair. This is most likely due to normal bending and creep deflection but should be monitored.

B ■ Notched rafters

The bottoms of many of the rafters are notched midspan at the original portions left and right roof slopes. This was probably done to accept purlin that was never installed. The rafters should either be reinforced by sistering or the missing purlin should be added.



B ■ Undersized roof framing

The joist and rafter framing that makes up the roof of the rear addition appears to be extremely lightly constructed. Field measurement and a structural analysis should be performed to determine the anticipated level of snow load stress, and the undersized members should be reinforced by sistering or additional support.

B ■ Unbraced stud walls

The stud walls that support the roof framing of the addition have no sheathing, blocking or bracing between the studs to prevent them from buckling. Horizontal cleats and diagonal struts should be installed to properly brace the studs.

3.4 Existing Conditions Report: Princeton Center
Fire Protection Assessment

Fire Protection Assessment

Type of Construction: Wood frame
Year of Construction: 1906, Gymnasium 1936
Latest Addition: 1977
Gross Sq Ft: 15,779 sf

Priority (A-C) Summary

Exterior Conditions



The building does not have an automatic sprinkler system.

In general, Massachusetts General Law M.G.L. c.148, s.26G requires that any existing building over 7,500 square feet that undergoes **major** alterations or building addition must be sprinklered. Examples of major alterations are demolition or reconstruction of existing ceilings or installation of suspended ceilings; removal of sub flooring; demolition and/or reconstruction of walls, doors, or stairways; or removal or relocation of a significant portion of the building’s mechanical or electrical systems. Alterations are considered major when such work affects 33% or more of the building area or when total work (excluding sprinkler installation) is equal to 33% or more of the assessed value of the building.

- A If the proposed project scope exceeds these thresholds then the existing building, and its additions if applicable, will require installation of an automatic sprinkler system.

3.4 Existing Conditions Report: Princeton Center

Plumbing Assessment

Plumbing Assessment

Priority (A-C)

Summary

Interior Conditions



Executive Summary:

Presently, the Plumbing Systems serving the building are cold water, hot water, and sanitary, waste and vent system. Building is served well water and an on-site septic system.

Fixtures:

Basement level water closets are wall hung vitreous china with manually operated flush valves.

Basement level urinals are wall hung vitreous china with manually operated flush valves.

First and Second Floor unisex bathroom water closets are floor mounted, vitreous china, tank type.



Lavatories are wall hung vitreous china with manual faucets. Lavatories do not have a mixing valve to limit temperature to below 110 deg F.

Basement service sink is generally trap standard mounted, enameled cast iron sink. Faucet is equipped with vacuum breaker.

Three counter-mounted stainless steel sinks are provided in the Kitchen.

Sink on Second Floor is out of service.



- A Plumbing fixtures are in poor condition and are not accessible. Recommend replacing all plumbing fixtures.

3.4 Existing Conditions Report: Princeton Center

Plumbing Assessment



Water Systems:

The building is supplied with well water. There are two (2) pressure tanks located in the Basement Corridor. One tank is a Well-X-Trol WX-252 with a volume of 86 gallons. The other tank is Flexcon WR200R with a volume of 62 gallons.

Domestic water piping is copper tubing with sweat joints. The piping is not insulated. The piping and shutoff valves are in poor condition.

Domestic hot water for the bathrooms is generated through an electric tank type water heater. Water heater is located in the Basement. Water heater has a 20 gallon capacity and was manufactured in April 2014. The system is not equipped with a mixing valve or expansion tank. The hot water system is not recirculated.

Domestic hot water for the Kitchen sinks is generated through an electric point-of-use water heater located in the sink casework.

- A Provide thermostatic mixing valve and recirculation system on water heater.
- A Provide new domestic water piping throughout.
- A Insulate all domestic water piping.



3.4 Existing Conditions Report: Princeton Center

Plumbing Assessment

Drainage Systems:

Cast iron is used for sanitary drainage. Smaller pipe sizes appear to be copper.

- A PVC piping is used at some sinks. To be code compliant PVC must be replaced with copper piping.
- A Where visible, the cast iron pipe appears to be in poor condition. Recommend all new cast iron sanitary piping.



3.4 Existing Conditions Report: Princeton Center

HVAC Assessment

HVAC Assessment

Priority (A-C)

Summary

HVAC Conditions



Cast Iron Radiator



Temporary Piping Repair



Oil Fired Steam Boiler

Heating Plant:

There is one oil-fired cast iron steam boiler manufactured by Weil McLain, Model 880 with a gross output capacity of 872 MBH and a net IBR steam output of 654 MBH. The boiler fires #2 fuel oil via a Carlin power burner. The boiler is provided with a dual low water cut-off and all operating and safety controls. Fuel oil is stored in two 275 gallon basement oil tanks. The boiler is vented to a masonry chimney via a single wall galvanized stove pipe. Combustion air is provided by a 34x22 louver in a basement window ducted to a 24x12 open ended duct that terminates 18" AFF. There are three temperature zones in the building controlled by 2-way zone valves at the boiler steam header. The zones consist of original building, addition, and the science labs. Condensate drains by gravity to a Hoffman 50HBFD-B duplex boiler feed unit with 50 gallon condensate receiver with two 1/3 HP pumps rated for 15 GPM at 20 psi. Steam is distributed throughout the building via insulated steel piping. Thumbwheel valves at the radiators can be manually adjusted to control the temperature to each room. These valves appear to be frozen in their current positions, so each room has no way of individually and manually adjusting the heat output of the radiators, for as long as the main 2-way zone valve is open. Some of the classrooms have local 2-way zone valves which are likely locked in the open position.

Most of the original section of the building is single pipe steam, as the steam and condensate travel in the same pipe. The addition is 2 pipe steam, as the condensate has its own dedicated piping system. Condensate piping is largely insulated steel piping but is partially copper piping in the boiler room. This copper piping is troublesome, as it is more susceptible to corrosion by hot caustic condensate. On 11-7-17, a pinhole leak in a section of 2" copper condensate piping that drains a steam riser, was leaking a considerable amount of condensate. This section should be immediately replaced. On such a mild day, it appears that condensate was backed up fairly high in the system.

It should be investigated why the condensate is so backed up, as perhaps the strainers at the main F&T traps are plugged. It has been reported that due to the age of the piping system, there have been many condensate leaks throughout the building.

3.4 Existing Conditions Report: Princeton Center

HVAC Assessment



Feedwater Tank



Substantial Pinhole Leak in Copper Condensate Piping

Room Heating:

The classrooms in the original building are heated by three bare pipes run around the perimeter of the room. The classrooms over the gym are heated by unit ventilators containing steam coils. The stairwells, corridors, and smaller rooms are heated by cast iron radiators. The first floor handicapped bathroom is heated by electric baseboard. The basement bathrooms are heated by high mounted slope-top baseboard. The gym is heated by a horizontal unit heater.

Ventilation:

The classrooms are ventilated by a hi-lo gravity ventilation system where fresh air pours in from roof vents which is heated by cast iron radiators at the base of the duct riser which is then discharged out low wall grilles. Stale air is then relieved from the room via high grilles. These radiators are no longer functional, so it appears that operable windows are being used for ventilation. In the addition over the gym, the unit ventilators appear to no longer be used for ventilation, so it appears that operable windows are being used. Generally, the only ventilation means in the building are operable windows. Not even the bathrooms are mechanically exhausted.

Recommendations:

- A ■ Fix leaking copper condensate piping behind boiler.
- A ■ Investigate why condensate is backed up so much, clean strainers before main F&T traps.
- A ■ Keep boiler maintained and regularly blown down to remove solids.
- A ■ Entire heating and ventilating system needs to be replaced.

Electrical Assessment

Existing System: Electrical

Size of Service(s):

(2) 200A 120/240V 1Ph 3W Services

The building has two (2) 200A 120/240V 1Ph 3W services

Service No. 1 – South-east Corner: Classroom Feed

The service originates at the service entrance weather head and drip loop. A 200A meter socket is located on the S.E. corner of the building. The load-side of the meter socket feeds a 200A fused disconnect into a wireway feeding four loads - 50A enclosed circuit breaker, an unidentified feeder, a 30A boiler switch and a 200A Service panel.

Service No. 2 – North-west Corner: Kitchen Feed

The service originates at the service entrance weather head and drip loop. A 200A meter socket is located on the exterior of the building. The load-side of the meter socket feeds a 200A enclosed circuit breaker which feeds a 200A service panel and 125A sub-panel located in the same room.

Generator: None

Capacity:

The two (2) 200A services provide 4.85 W/SF. The existing wiring provides minimal outlet coverage for 2017 Educational and Community Service Building standards.

Electric Closet:

Service No. 1 and Service No. 2 electrical service equipment and associated distribution are located in the basement.

Wiring:

Mix of obsolete Knob & Tube, non-metallic sheathed cable and armor-clad cable of various ages and condition.

General Condition: Poor

Sub-Panels: First Floor Science Classroom

S-P Locations:

First Floor Science Classroom System Condition: Poor

Lighting:

Incandescent, Incandescent fixtures with CF lamps (Edison-base), linear fluorescent (T-12).

Receptacles:

Quantity and location is sparse. Grounding type receptacles were noted but suspect some may have inadequate ground based on branch circuit wiring type.

Emergency Ltg:

Plug-in and hard-wired emergency battery units; quantity and coverage does not meet life safety code; all units should be tested for proper operation.

Non-illuminated EXIT signage utilized throughout.

3.4 Existing Conditions Report: Princeton Center

Electrical Assessment

Fire Alarm:

The building houses an obsolete hard-wired heat detection system with add-on pull stations interfaced and operated through the security system. In the past the system reported to the dispatch annunciator in the Public Safety Building, but this connection has been disabled and the system only functions local to the building with minimal bells operating; the bells are left over from the buildings school program and do not meet ADA and NFPA standards for a Public Building

Smoke Detectors: No

Heat Detectors: Limited coverage, button-type

CO Detectors: No

Audible & Strobe: None Observed

Annunciator Panel: None Observed

PA System: None Observed

Low Volt Systems:

Voice, Data, and Security. The voice/data service entrance and equipment were located at the Front Room.

Code Issues: Fire Alarm and Carbon Monoxide Coverage, Emergency Egress Illumination.

Suggested Actions:

Maintain System:

None. All Systems are at end of service life.

Replace Systems:

- Main Electrical Service, Electrical Distribution & Feeders, Branch Circuiting, Junction Boxes and Receptacles.
- Fire Alarm Panel, Signaling and Initiation Devices, Radio Master Box
- Light fixtures
- Intrusion Detection
- Voice/Data

Add Systems:

- Emergency and or Stand-By Generator, ATS, Distribution & Feeders
- CCTV – Remote Access
- Automated Lighting Controls
- Audio Visual Infrastructure – Light Educational and Community Access Building

No Action Req'd:

None. All Systems are at end of service life and should be replaced.

Code Compliance:

The Fire Alarm System coverage, emergency egress pathway instructions and emergency lighting does not meet code.

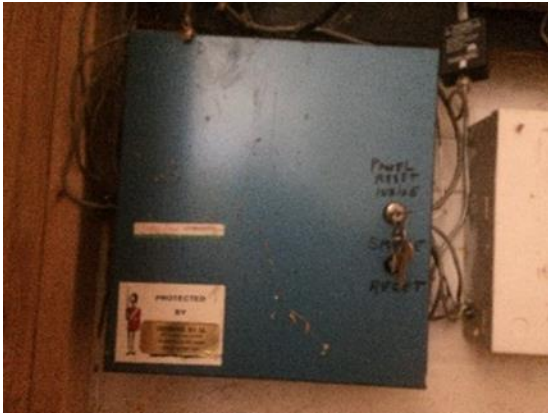
3.4 Existing Conditions Report: Princeton Center

Electrical Assessment

Priority (A-C)

Summary

Interior Conditions



Security – F/A Relay Panel:

- A ■ Replace relay panel with radio master box.



Button-Style heat Detection:

- A ■ Replace Fire Alarm System initiating devices: smoke, heat, CO and pull stations per code.



Absence of Egress Lighting:

- A ■ Replace Fire Alarm System, means of egress lighting and signage and add initiating devices: smoke, heat, CO and pull stations per code.

3.4 Existing Conditions Report: Princeton Center

Electrical Assessment



Absence of Pull Stations:

- A ■ Replace Fire Alarm System initiating devices: smoke, heat, CO and pull stations per code.

Recommended Actions:

Prior to occupancy, replace all existing Life Safety Electrical Systems with code-compliant systems.

Fire Alarm System, ADA Signaling and Initiating Devices and Radio Masterbox.

Priority A	Immediate concern that must be addressed regardless of whether the building is renovated.
Priority B	Code issues that are likely to have to be addressed for a partial building renovation. A Level 1 or Level 2 Alteration under the International Existing Building Code (IEBC) as adopted by 780 CMR. Renovation cost greater than \$100,000 but less than 30% of the building's assessed value (521 CMR compliance thresholds).
Priority C	Code issues that are likely to have to be addressed for a full building renovation. A Level 3 Alteration under the International Existing Building Code (IEBC) as adopted by 780 CMR. Renovation cost greater than 30% of the building's assessed value (521 CMR compliance thresholds).

SEE PRECEDING SECTIONS FOR PHOTOS, FULL DESCRIPTIONS AND RECOMMENDATIONS

BAGG HALL

Priority Summary

- | | |
|---|--|
| A | <p><u>Well</u></p> <ul style="list-style-type: none"> Quality of water and longevity of well unknown. If improvements proposed, may be required to meet DEP requirements for public water supply. |
| A | <p><u>Drainage</u></p> <ul style="list-style-type: none"> Existing drainage appears to be in place. We heard anecdotally that the basement of Bagg has water issues. This drainage system is occasionally overwhelmed during heaving rainstorms and there is no subsurface drainage around the building other than parking area catch basins. Any improvements to Bagg will need to consider addressing these concerns. |
| A | <p><u>Retaining Walls</u></p> <ul style="list-style-type: none"> Existing Retaining Walls with access to basement are loosely placed. Site improvements may consider improving these walls |
| A | <p><u>Drainage Systems</u></p> <ul style="list-style-type: none"> Recommend video inspection to confirm integrity and pitch of existing below grade piping. |
| A | <p><u>Paving</u></p> <ul style="list-style-type: none"> Paving has many cracks and patches in the parking areas surrounding Bagg Hall. |
| A | <p><u>Planting</u></p> <ul style="list-style-type: none"> Existing Planting sparse. Large mulch beds. Team may review with Town maintenance to evaluate alternatives and maintenance expectations for softscape areas around Town buildings. |
| A | <p><u>Pedestrian Pavements</u></p> <ul style="list-style-type: none"> Pedestrian concrete pavers are in need of replacement between Bagg Hall and the Library. |

3.5 Existing Conditions Report - Priorities Summary

- A Exterior Walls:
- Efflorescence and spalling of bricks and sandstone on east facade is noticeable - should be seen as an emergency repair, as bricks could fall onto persons using the handicapped entrance
- A Exterior Doors
- 1st floor - Fair condition, but hardware is non ADA compliant.
- A Interior Doors
- Accessible entry door has been replaced, some repairs are needed
- A Windows
- Fair to poor condition overall
 - First floor windows are drafty - pockets for sash weights allow air penetration.
 - Second floor windows are in poor shape
- A Structure
- Settlement of West Wall - Ground water is running down the hill and has been infiltrating the east foundation wall and continued through the building to the west foundation wall. This water movement has resulted in a hole in the east foundation wall and undermining of the west foundation wall near the door to the exterior. The undermining of the west wall has caused extensive cracking in both the north and west wall.
 - Drainage should be installed to prevent the water from continuing through the basement. After the water has been redirected around the building, the opening in the east foundation wall should be infilled. The base of the west foundation wall near the doorway should be exposed to confirm that the wall is bearing on soil and that the water has not washed it away. Once the foundation wall has been determined to be stable, the cracked brick masonry should be dismantled and reset on the north and west elevations. It should be noted that it is not feasible or necessary to dismantle and reset the wall to be level. Because of this there will still be a slant to some of the masonry elements after the repairs are completed.
 - Damaged Plaster Keys - The back side of the second floor ceiling plaster could be reviewed. Lath and plaster ceiling and wall finishes is installed by pushing the plaster through the spaced between the lath boards. The plaster that extends past the back face of the lath is known as "keys". It appears in some areas that the keys do not extend fully through the lath and may be damaged. The damaged and missing keys could result in the plaster becoming separated from the lath and falling. The connection between the lath and plaster should be reinforced. This work should be completed by plaster specialists.
 - Potential Damage to Brick Corbel - The brick corbel at the top of the exterior walls was not accessible during our site visit but is an area that is vulnerable to deterioration from water damage. Additional investigation should be completed from a lift to allow for a close inspection of the brick corbel. The brick masonry should be tapped on with a hammer to locate loose brick masonry. Where the masonry is found to be loose, the brick corbel should be dismantled and reset.
 - Cracked Stone Units - There are cracked stones on the west elevation from the

3.5 Existing Conditions Report - Priorities Summary

settlement described above. The cracked stones should be pin repaired or replaced during the repair of the surrounding masonry.

- A Water Systems
 - Recommend installing thermostatic mixing valve and hot water circulator on water heater.
 - Insulate all domestic water piping

- A Fixtures
 - Recommend fixtures be replaced. Separate accessible bathrooms should be provided for public and staff, and each sex.
 - Provide mixing valves at lavatories to limit hot water temperature to 110 deg. F.
 - Provide service sink and drinking fountain.

- A LP Gas
 - Gas piping is showing signs of corrosion; recommend painting exterior gas piping.

- A Heating
 - Move furniture away from wall to not impede airflow through baseboard heat.
 - Add additional baseboard heat.

- A Exposed Junction Boxes:
 - Coverplates for junction boxes to be closed.

- A F/A Device:
 - Replace relay panel with radio master box.

- A F/A and Egress Devices:
 - Replace Fire Alarm System, means of egress lighting and signage and add initiating devices: smoke, heat, CO and pull stations per code.

TOWN HALL ANNEX

- A Fire Alarm System:
 - The building has an existing fire alarm system that is currently disconnected and not functioning. Given the current assembly uses of more than 49 occupants the fire alarm system must be restored. Since the building is less than 5,000 sqft.

- A Roof
 - North side is in poor condition

- A Exterior Wall
 - Plywood has weathered and in poor condition

- A Floors
 - Water damage evident – particularly in south-west corner. Carpet should be removed and inspected for mold.

3.5 Existing Conditions Report - Priorities Summary

A Exterior Conditions

- Diagonal step cracks - There are numerous and opposing diagonal cracks in CMU wall at left side of structure. These may be from foundation settlement, from corroding metal embedments, or even just from expanding and lifting of badly deteriorating mortar joints. There are also step cracks running upward from the ends of window lintels at the rear wall. The cracks significantly weaken the wall as they eliminate the wall's shear and bending strength. Unlike eroded mortar joints, the cracks likely run through the full thickness of the wall construction and need to be repaired from both sides.
- This can be done in several ways:
 - By removing interior finishes to expose the inner face of the wall and deeply cutting and pointing from the interior and exterior using backer-rods.
 - By removing and re-setting the concrete blocks along one or both sides of the cracks from the exterior.
- or
- By incrementally cutting through the entire thickness of the wall and installing grout filled lozenge type sock anchors from the outside of the wall and then pointing outer surface (this is a proprietary system that this office has developed).
- Any rusting metal embedment should be removed.

A Plumbing Fixtures

- Recommend fixtures be replaced. Separate accessible bathrooms should be provided.
- Provide service sink and drinking fountain.

A Water Systems

- Recommend installing thermostatic mixing valve on water heater.

A Drainage Systems:

- It was reported by the staff that there are drainage issues with the below grade piping. Recommend video inspection to confirm integrity and pitch of existing piping.

A Main Distribution Panel:

- Main distribution panel showing signs of corrosion and all circuits assigned.

A Honeywell F/A relay panel:

- Replace relay panel with radio master box.

A Building Emergency Signaling and Egress Lighting and Signage:

- Replace Fire Alarm System, means of egress lighting and signage and add initiating devices: smoke, heat, CO and pull stations per code.

A Load Center

- Antiquated Load center recommended for replacement.

A Data Center

- Add provisions for Projector and local sound system.
- Add provisions for new telephone and data throughout.

3.5 Existing Conditions Report - Priorities Summary

PUBLIC SAFETY BUILDING

- A Sprinkler System & Fire Alarm
- If the proposed project scope exceeds these thresholds then the existing building, and its additions if applicable, will require installation of an automatic sprinkler system and new fire alarm system.
- A Utilities
- If improvements provided, may have to install an industrial waste holding tank to collect water from wash bays per DEP requirements.
- A Accessible Entrances
- Any improvements may require accessible entrances and modifications to entrances and access per MA Code. Modifications may be challenging accommodating associated utilities and grades.
- A Roof
- Asphalt shingles on police station. There is batt insulation at the bottom cords of the roof trusses. The asphalt roof is over 25 years old. It needs to be replaced.
 - There are severe ice dams on the north side of the fire station as reported by HKT.
- A Roof Structure
- Roof sags over garages due to truss overstress. The roof of the garage 3-bay section of the police station sags noticeably at the ridgeline due to the overstress and deflection of the supporting truss (please see “Interior”/ below).
- A Exterior Walls
- Painted Wood Clapboard. Fair to poor condition. Wood clapboards are splitting and peeling.
 - Trim is in poor condition and should be replaced.
- A Interior Walls
- Concrete walls in basement. Poor condition; requires repair.
- A Floors
- Concrete in Police Garage. Allowing water into basement below.
- A Ceilings
- GWB in the vehicle bays on the first floor. Some water damage. Also sagging in places. See Structural Report
- A Interior Conditions
- Severe chloride damage below police garage bay - There is a reinforced concrete basement “vault” space below the police garage bay, which is at the upper level. Salt laden water drips off of the vehicles onto the concrete garage floor and seeps down into the structure below it, creating elevated chloride conditions in the concrete. The chlorides cause accelerated corrosion in the reinforcing steel, which is aggressively oxidizing and cracking and spalling the concrete. The humidity within this space also

3.5 Existing Conditions Report - Priorities Summary

feeds the corrosion, which will eventually degrade the concrete structure to the point that is unusable.

- A waterproof parking deck type floor membrane should be installed on the floor of the garage bay along with proper drainage in order to stop the infiltration. The cracked and spalled portions of the concrete should be chipped away and the rusting reinforcing should be cleaned and rust coated. The removed concrete should then be patched back and the space mechanically dehumidified to prevent further corrosion. The chloride infused concrete will always have an affinity toward rebar corrosion, and keeping it dry will always be critical.

A Roof

- Roof sags over garages due to truss overstress - The roof of the garage 3-bay section of the police station sags noticeably at the ridgeline due to the overstress and deflection of the supporting truss (please see "Interior"/ below).

A Structure

- Truss deformation and overstress
The continuous truss that runs under the ridgeline over the three garage bays has been jacked and re-supported at one bay into its left span end with a new timber post and clamping channel columns. Unfortunately, while this helps lift one end of the truss and shorten the span, the truss's top chord is still grossly undersized for the compression and bending load on it, and remains deflected by several inches, allowing the roof's ridgeline to sag noticeably and the eaves to bow out. In addition to the overstressed chord, the other truss members are also undersized and their nailed connections suspect. The entire truss must be significantly reinforced, or even sistered or replaced. This could be most efficiently achieved bolted steel members that are assembled and connected in place. The roof ridge should be jacked upward during the installation and the ceiling removed and the eaves pulled in. Because of the importance of the spaces below, the extreme deformation that has occurred and the potential severity of winter snow, this should be considered an URGENT condition.

A Plumbing

- Recommend all fixtures be replaced. Provide accessible public and staff facilities.
- Provide mixing valves at lavatories to limit hot water temperature to 110 deg. F.
- Provide new service sink and drinking fountain.

A Water Systems

- Recommend installing thermostatic mixing valve and hot water circulator on water heater.
- Provide backflow preventer on supply to sprinkler heads.
- Provide backflow preventer on supply to hose valves in Apparatus Bays.

A Drainage System

- Recommend video inspection to confirm integrity and pitch of existing piping. Replace all poor draining sanitary piping.
- Provide floor drains in garage areas. Drains to discharge to an exterior industrial waste holding tank.

3.5 Existing Conditions Report - Priorities Summary

- A HVAC
- Raise oil tank vent.
 - Add a motorized damper on the combustion air duct to save energy.
 - In the police station, replace the utility closet ceiling exhaust fan and other inoperable ceiling exhaust fans.
 - Add an exhaust fan to the fire station bathroom
 - Existing Boiler and furnace combustion exhaust piping require repairs, including sealing the pipes and securing their connection to masonry opening.

- A Egress Lighting and Fire Alarms:
- Replace Fire Alarm System, means of egress lighting and signage and add initiating devices: smoke, heat, CO and pull stations per code. Batteries in this unit were unresponsive to testing.

- A Stand-by Generator:
- Standby Generator is scheduled for replacement. Phil Connors reports that propane storage tank and generator output are undersized for this building to continue emergency/first responder coverage during periods of lost or interrupted power

PRINCETON CENTER

- A Site Assessment
- If uses change within the building, changes may need to be made to existing septic system. If drains in boiler room or wash bays proposed, new industrial waste holding tank may be required.
 - Many of the site furnishings are nearing the end of life.

- A Accessibility
- Many levels within the building that are not accessible.

- A Water Source
- If additions/ renovations well may require meeting DEP standards, such as a new well with a Zone 1 outside of pavements or building footprints.

- A ADA Parking
- ADA Parking spaces may need to be modified to bring up to code with any new improvements.

- A Pavements – Rear of Building
- Pavements at the rear of the building may need replacement within 0-3 years. Some erosion taking place at the top of slope.

- A Play Equipment
- Play Equipment no longer meets safety guidelines. Top bar on one of swings is broken.

3.5 Existing Conditions Report - Priorities Summary

- A Exterior Stairs
- Do not meet accessibility requirements for railings
- A Fire Alarm System:
- The fire alarm system is currently not functioning properly and per order of the fire department must be repaired or replaced before the building can be re-occupied.
- A Roof
- The roof was repaired in 2012, but no roof barrier was installed - ice dams occur and cause water damage to the windows.
 - Roofing paper has deteriorated and roof is not weather tight
- A Exterior Walls
- North side - wood trim is in poor condition.
- A Insulation
- Additional air sealing needed
- A Windows
- Windows are drafty, some joints are exposed, many sashes need to be replaced
- A Floors
- The floors are uneven in many places, resulting in doors not being square.
- A Ceilings
- Water damage can be seen on second floor, paint is peeling in several locations due to the original calcimine painted plaster ceilings
- A Fire Protection
- If the proposed project scope exceeds these thresholds then the existing building, and its additions if applicable, will require installation of an automatic sprinkler system.
- A Plumbing Fixtures
- Plumbing fixtures are in poor condition and are not accessible. Recommend replacing all plumbing fixtures.
- A Water Systems
- Provide thermostatic mixing valve and recirculation system on water heater.
 - Provide new domestic water piping throughout.
 - Insulate all domestic water piping.
- A Drainage Systems
- PVC piping is used at some sinks. To be code compliant PVC must be replaced with copper piping.
 - Where visible, the cast iron pipe appears to be in poor condition. Recommend all new cast iron sanitary piping.
- A HVAC
- Fix leaking copper condensate piping behind boiler.
 - Investigate why condensate is backed up so much, clean strainers before main F&T traps.

3.5 Existing Conditions Report - Priorities Summary

- Keep boiler maintained and regularly blown down to remove solids.
- Entire heating and ventilating system needs to be replaced.

A

Electrical

- Replace relay panel with radio master box.
- Replace Fire Alarm System initiating devices: smoke, heat, CO and pull stations per code.
- Absence of Egress Lighting: Replace Fire Alarm System, means of egress lighting and signage and add initiating devices: smoke, heat, CO and pull stations per code.

3.5 Existing Conditions Report - Priorities Summary

Priority A	Immediate concern that must be addressed regardless of whether the building is renovated.
Priority B	Code issues that are likely to have to be addressed for a partial building renovation. A Level 1 or Level 2 Alteration under the International Existing Building Code (IEBC) as adopted by 780 CMR. Renovation cost greater than \$100,000 but less than 30% of the building's assessed value (521 CMR compliance thresholds).
Priority C	Code issues that are likely to have to be addressed for a full building renovation. A Level 3 Alteration under the International Existing Building Code (IEBC) as adopted by 780 CMR. Renovation cost greater than 30% of the building's assessed value (521 CMR compliance thresholds).

SEE PRECEDING SECTIONS FOR PHOTOS, FULL DESCRIPTIONS AND RECOMMENDATIONS

BAGG HALL

B Well

- Existing well has the capacity of 20 GPM, with no water treatment. Well pump is located 272 ft below grade. The static water level is approximately 25 ft below grade. Well is an 8" Artesian well. Installation Date Unknown.

ADA Access - Exterior

- Existing Ramp may not meet current ADA codes. Improvements may require updates to existing ADA ramp, as well as additional points of access into the building.

B ADA Access

- The slope of the existing walkway leading to the accessible side entrance door was not measured, however if it exceeds 5% handrails on both sides of the ramp are required (521 CMR 24). The existing accessible toilet room is not compliant as there is insufficient clear floor space in front of the toilet (must extend out a minimum of 42" in front of the toilet) and the side grab bar is less than 42" long (521 CMR 30.7.2 & 30.8)

B Stairs

- For a Level 2 renovation stairs within the work area must be enclosed in 1 hour rated construction (IEBC 803.2). Although if the building is fully sprinklered a rated enclosure for the stairs is not required (IEBC 803.2 Exception 5).

B Septic

- Existing Septic System is shared by multiple buildings on site. The system has been pumped regularly. Unknown is the system's longevity or if an alternative site can be located if this system needs replacement. Depending on the number of full time staff and users on site, the system may require review by DEP

B Ceilings

- 2nd floor - poor condition, water damage is apparent and paint is peeling.

3.5 Existing Conditions Report - Priorities Summary

- B Exterior Doors
- Original entry doors are in fair to good condition
- B Interior Doors
- Aluminum door at entry is not historically compatible
- B Floors
- Carpet appearance is fair to worn condition
- B Windows
- Windows are difficult to operate
- B Walls:
- Significant settlement crack at northwest corner that requires repair and west wall requires more thorough examination
 - Some brick repointing is needed
- B Insulation
- No exterior insulation in first floor, walls and attic.
 - First floor ceiling: to be determined.
- B Interior Walls
- 2nd floor - plaster is water stained and paint is peeling. Historic stenciling has been painted over. Walls need to be patched; wainscoting and window stools need repair.
 - Evidence of moisture has been found on interior walls - possibly caused by metal gutter and cornice flashing. [P. Connors reports that observed moisture is old and is believed to have been corrected with recent roofing project.]
- B Roof
- Conical roof is missing slate
 - Roof and flashings are in need of repair - daylight can be seen through the roof in the attic at the interface of exterior brickwork and cornice at the soffit which was not included in previous repairs made at roof.
- B Structure
- Loose Brick Units - There are a couple of loose brick units at the upper northwest corner of the safe addition on the north elevation. The loose brick units should be removed and reset.
 - Settlement of West Wall. Described above, the settlement has caused the first and second floor beams in the area of the settlement to deflect. This movement has resulted in greatly sloped floors. There are also cracks in the plaster from this settlement. The first floor beam does not appear to be damaged from the deflection of the west end. An attempt can be made to raise the beam end to create a more even floor but it is unlikely to be restored to its original state. After the drainage, foundation and exterior masonry repairs are completed, along with any adjustments to the beams, the cracked plaster should be repaired.

3.5 Existing Conditions Report - Priorities Summary

- B Sprinkler System
- If more than 50% of an individual floor is reconfigured, sprinkler protection is required within the reconfigured area only, unless it can be demonstrated that the available water supply is not sufficient for the design of a sprinkler system without a fire pump (IEBC 804.2.2).
- B HVAC
- Add self- contained valves to any baseboard that tends to overheat room.
- B Exit Signs & Emergency Lighting
- The building includes existing exit signs that appear to have the ability to be illuminated, although they were not illuminated at the time of the site visit. Signs must be repaired or replaced to comply with the requirements for new construction in any renovated areas (780 CMR 102.6.4).
 - Existing emergency lighting fixtures were not tested or evaluated for adequate coverage but may need to be replaced or supplemented in any renovated areas to comply with current code requirements (780 CMR 102.6.4)

TOWN HALL ANNEX

- B Park Access
- Access and entrance to Park is undefined.
- B Paving
- Asphalt Paving has been patched and is cracking in places.
 - Front Entry is fully accessible at grade
- B Downspouts
- Drainage at building may need to be addressed with any site improvements.
- B Exit Signs & Emergency Lighting
- The building includes non-illuminated exit signs. Illuminated exit signs with battery back-up must be provided as required for new construction in any renovated areas if the building will be used for assembly purposes by more than 49 occupants (780 CMR 102.6.4).
 - Existing emergency lighting fixtures were not tested but appeared sufficient for the space. They should be tested to confirm they will operate properly and have sufficient battery back-up power if the space will be used for assembly purposes by more than 49 occupants (780 CMR 102.6.4).
- B Accessibility
- The existing entrance door at grade provides functional access, however there is a small slope at the door threshold, it is not level as required (521 CMR 26.6.1). The toilet room has sufficient floor space, however the rear grab bar is also only 36" long, less than the 42" minimum required (521 CMR 30.8). In addition, the ramp leading to

3.5 Existing Conditions Report - Priorities Summary

the toilet room does not include the require handrails on both sides and if a second handrail is installed the clear width will be less than the 48" minimum required (521 CMR 24.3). The top of the ramp is also approximately 47" wide and does not provide the required 60" x 60" turning space necessary at the landing and in front of the door (521 CMR 24.4).

- B Roof
 - Soffit is in poor condition, and the east side of the roof does not have gutters
 - Extent of roof insulation is unknown
- B Walls
 - CMU is in overall good condition, except for a settlement crack on the west side
- B Insulation:
 - Batt insulation - extent unknown
- B Doors:
 - Good to fair condition
- B Windows:
 - Good to fair, include thermal glazing
- B Floors:
 - Carpeted areas are in fair to good condition
 - Floors are slab on grade, with no perimeter insulation
- B Ceilings
 - Glued ceiling tiles are fair - poor
- B Exterior Conditions
 - Eroded mortar joints – the mortar joints in the concrete block wall construction at the front, sides and rear of structure are unusually eroded for a building of this age. The joints have softened and roughened due to weathering, and have in many places been etched out and or expanded, allowing the concrete blocks to shift or de-bond. The damaged mortar joints should be deeply cut and pointed or grouted as much as the limiting thicknesses of the face shells will allow. Unfortunately, because the concrete blocks are hollow, cutting too deeply with expose the inner cores and the repointing mortar will slough into the holes unless a backer rod is used. If the weakening runs further into the wall thickness, the unsupported masonry above the cut joints may shift. Therefore, this work will need to be done incrementally. This is a Priority Level 2 item.
 - Chimney damage - The lower portion of the rear chimney is in very poor condition and the entire chimney needs to be rebuilt.
 - Rotted wooden fascias - There are rotted holes in the fascia boards at several locations. The rotted boards should be removed and the supporting blocking and rafter ends should be inspected, treated and repaired as needed, and the fascias should be replaced.

3.5 Existing Conditions Report - Priorities Summary

- B Interior Conditions
- Leakage through at infilled doorways - Water apparently leaks into the interior where wall where doorways have been infilled in the front wall. The infilled openings should be inspected from both sides and properly sealed. The roof edge flashing should also be checked to confirm it is not also a source of damage.
 - Cracked window lintel - There is a cracked precast concrete lintel spanning over a window on the east wall. The crack runs horizontally and is likely due to expansive rust in the reinforcing steel. The lintel should ultimately be replaced.
- B Exterior Lighting
- Minimal use of exterior building mounted lighting.

PUBLIC SAFETY BUILDING

- B Paving
- Asphalt Paving has been patched and is cracking in places.
- B Stairs:
- For a Level 2 renovation stairs within the work area must be enclosed in 1 hour rated construction (IEBC 803.2). Based on the masonry construction used for the stair enclosure it likely meets this requirement.
- B Exit Signs & Emergency Lighting
- The building exit signs that appear capable of illumination but were not illuminated during the site visit. Existing signs must be repaired or replaced with signs having adequate battery back-up as required for new construction in any renovated areas.
 - Existing emergency lighting fixtures were not tested or evaluated for adequate coverage but may need to be replaced or supplemented in any renovated areas to comply with current code requirements (780 CMR 102.6.4).
- B Accessibility
- The existing rear entrance door is at grade and wheelchair accessible. However there is grade leading to the door and no accessible route from an accessible parking location to the door. If renovation costs exceed \$100,000 and this door remains a public entrance an accessible route from the door to an accessible parking location must be created.
- B Exterior Walls
- Painted CMU. Fair condition; paint peeling in some locations
 - Exposed concrete. Fair condition
- B Insulation:
- Batt insulation in addition only. Not evenly applied

3.5 Existing Conditions Report - Priorities Summary

- B Doors:
- Overhead doors in apparatus bays. The overhead doors have a gap at the floor and are rusting at the sills.
 - Insulated hollow metal doors in pressed metal frames. The egress door interior stairway does not close properly. There is daylight between the metal frame and the wall.
- B Floors
- Concrete in vehicular bays. Cracked and showing wear, but not an immediate concern.
- B Structural
- Rotted wooden fascias. There are rotted holes in the fascia boards at several locations. The rotted boards should be removed and the supporting blocking and rafter ends should be inspected, treated and repaired as needed, and the fascias should be replaced.
 - Settlement crack - There is a vertical crack running through the concrete block portion of the left wall, crossing a window. This is probably due to some minor settlement and has presumably stabilized by now. The crack should be spanned with flexible sealant and monitored for further movement
 - Ingress of water running downhill from rear - The ground slopes generally upward from behind building and there is an excavated areaway along the back wall that collects it. This collected water appears to percolate inward through the foundation and the lower portion of the back wall. The areaway should be excavated and the foundation and building face positively waterproofed and drained. The areaway should also be given its own area drain to prevent overflow.
- B HVAC
- Add fresh air duct to police station air handler.
- B Lighting
- As a matter of energy savings and improved efficiencies with lamp maintenance and ballast replacements, a continuous plan of replacing all incandescent, CFL and fluorescent-tube lamps with LED is recommended in offices
 - Police Chief reported that the lighting in the garage works sporadically and requires replacement.

PRINCETON CENTER

- B Paving – Front of Building
- Existing Paving may need replacement in 3-6 years.
- B Septic
- Existing Septic Field has been pumped on a regular basis. Longevity is unknown.
- B Water Sources
- Water Sources: 15 year old well; 200-225 ft. Artesian 6" well under the gymnasium, believe less than 2-5 GPM. Water Treatment: pH adjustment with soda ash.

3.5 Existing Conditions Report - Priorities Summary

Water has not been tested for water quality.

B Site Furnishings Generally

- Fair to poor condition

B Sprinkler System:

- If more than 50% of an individual floor is reconfigured, sprinkler protection is required within the reconfigured area only, unless it can be demonstrated that the available water supply is not sufficient for the design of a sprinkler system without a fire pump (IEBC 804.2.2).

B Stairs

- For a Level 2 renovation stairs within the work area must be enclosed in 1 hour rated construction (IEBC 803.2). Although if the building is fully sprinklered a rated enclosure for the stairs is not required (IEBC 803.2 Exception 5).

B Exit Signs & Emergency Lighting

- The building includes non-illuminated exit signs throughout. Illuminated exit signs with battery back-up must be provided as required for new construction in any renovated areas.
- Existing emergency lighting fixtures were not tested or evaluated for adequate coverage but may need to be replaced or supplemented in any renovated areas to comply with current code requirements (780 CMR 102.6.4).

B Accessibility

- The existing ramp is generally compliant, however the clear width between handrails in some locations is as narrow as 46.5", less than the 48" minimum required (521 CMR 24.3). The side grab bar in the accessible toilet room is also only 36" long, less than the 42" minimum required (521 CMR 30.8).

B Exterior Walls

- Areas of original wood shingles are in fair to poor condition. Areas that have recently been repaired look good. Some areas still need repair
- South side wood trim in fair condition

B Insulation

- Blown in fiberglass. Looks to be in good shape

B Doors

- Front doors are most likely original; one has been modified and is not operable.
- Overall exterior door conditions are fair

B Windows

- Fair to poor
- Windows added in 1977 did little for thermal insulation

3.5 Existing Conditions Report - Priorities Summary

- B Floors
- Fair to poor
- B Interior Walls
- Overall condition of interior walls is good to fair
- B Ceilings
- Fair to poor
- B Interior Doors:
- Mostly original doors in fair condition - many not square
- B Structural
- Loosened stones - There are some loosened stones at the corners of front foundation wall. These should be removed and re-set.
 - Crack in stonework - There is a crack running through the stonework directly over right front door arch. Any loose stones along this crack should be removed and re-set, and the crack should be jet cleaned, pointed and injection grouted.
 - Chimney damage - There is some weather related joint erosion and some loose bricks at top of main chimney. The loose bricks should be re-set and the eroded joints cut and pointed.
 - Bowing eaves - The left and right eaves of the rear addition bow outward. This relates to roof framing conditions at the attic interior.
 - Sagging roofs - The roof surfaces of the rear addition and science wing sag. The roof framing of the addition is visible from below and appears to be lightly constructed. The framing over the science wing are hidden by finishes but assumed to be lightly constructed as well.
 - Separating basement wall surface - The concrete block finish that provides the interior facing of the left basement is separating from the structural fieldstone backing. This is evidenced by a pronounced bulge in the CMU and a vertical sag. The sag may be a result of insufficient bearing or vertical support and the outward bulge is due to the CMU's delamination, which may have been initiated by the vertical movement. The CMU should be removed and replaced with new CMU or cast concrete that is properly supported and pinned to the structural backing wall. South side - wood trim is in fair condition.
 - Basement water damage - The basement wall and ceiling finishes have been damaged by water infiltration at the following locations:
 - At the back end of the left side hallway
 - At the heads of the repeating basement windows.
- Both of these conditions are likely to be from water that has seeped through the windows and wall structures above, since they occur below suspect areas at the first and second floor.
- First and second floor water infiltration - We were told during our site visit that there are frequent ice dams at the building eaves and associated water infiltration at the

3.5 Existing Conditions Report - Priorities Summary

repeating windows of the first and second floors below the eaves. While no outward sign of significant wall finish damage was visible, other than some staining, the sills of several of the windows are uneven as the mullions between windows appears to be compressing into them at the left side, first floor. This compression may be caused by normal drying shrinkage in the wood, but could also be caused by hidden rot or at least softening, due to the water saturation. The framing below the suspect areas should be exposed and inspected, and repaired or replaced if needed. The ice damming and water leakage should be addressed at the exterior.

- Sloping landing - The second floor stair landing slopes toward left rear stair. This is most likely due to normal bending and creep deflection but should be monitored.
- Notched rafters - The bottoms of many of the rafters are notched midspan at the original portions left and right roof slopes. This was probably done to accept purlin that was never installed. The rafters should either be reinforced by sistering or the missing purlin should be added.
- Undersized roof framing - The joist and rafter framing that makes up the roof of the rear addition appears to be extremely lightly constructed. Field measurement and a structural analysis should be performed to determine the anticipated level of snow load stress, and the undersized members should be reinforced by sistering or additional support.
- Unbraced stud walls - The stud walls that support the roof framing of the addition have no sheathing, blocking or bracing between the studs to prevent them from buckling. Horizontal cleats and diagonal struts should be installed to properly brace the studs.

3.5 Existing Conditions Report - Priorities Summary

Priority A	Immediate concern that must be addressed regardless of whether the building is renovated.
Priority B	Code issues that are likely to have to be addressed for a partial building renovation. A Level 1 or Level 2 Alteration under the International Existing Building Code (IEBC) as adopted by 780 CMR. Renovation cost greater than \$100,000 but less than 30% of the building's assessed value (521 CMR compliance thresholds).
Priority C	Code issues that are likely to have to be addressed for a full building renovation. A Level 3 Alteration under the International Existing Building Code (IEBC) as adopted by 780 CMR. Renovation cost greater than 30% of the building's assessed value (521 CMR compliance thresholds).

SEE PRECEDING SECTIONS FOR PHOTOS, FULL DESCRIPTIONS AND RECOMMENDATIONS

BAGG HALL

Curbing

- C
 - Existing Granite Curbing still in good condition. May consider reusing or resetting if improvements are proposed that require adjusting road layouts or paving. Phil Connors reports sections that are a problem due to snow removal operations.

Ceilings:

- C
 - 1st floor - ceiling is in good condition, except for 1 small crack in the clerk's office.

Interior Water Damage

- C
 - There is water damage visible in the second floor ceilings, which has caused the plaster to deteriorate. By reviewing the areas from the attic space, the water infiltration appears to have been eliminated. The damaged plaster should be repaired.

Fire Alarm System:

- C
 - The building includes an existing fire alarm system with audible alarms only (no visual). If a new sprinkler system is required as discussed above, a new fire alarm system must be installed to properly monitor the sprinkler system and provide alarms throughout the building (780 CMR 903.4.2). Also if full compliance with 521 CMR is required due to the cost of the work visual alarms must be provided throughout the building in accordance with NFPA 72.

Floors:

- C
 - Wood flooring is in fair to good shape where exposed

Walls

- C
 - 1st floor condition of walls is good

Sprinkler System:

- C
 - Sprinkler protection is required throughout the building, unless it can be

3.5 Existing Conditions Report - Priorities Summary

demonstrated that the water supply is not sufficient (MGL C. 148 Sec. 26G)

- C Accessibility
 - If full compliance is required (due to cost of alterations exceeding 30% of the assessed value) significant alterations would be required including the addition of an elevator to provide wheelchair access to the second floor and balcony. A ramp or wheelchair lift to the stage is required if it will be open to the public. All toilet rooms and entrances would also have to be made accessible. Variances would likely be required to allow existing historical elements to remain (i.e. front entrance and circular stairs).
- C Stairs
 - A Level 3 renovation requires full enclosure of all stairs in 1 hour rated construction at all levels, unless the building is full sprinklered (IEBC 903.1). All stair handrails and nosings must be altered or replaced to comply with 521 CMR (521 CMR 27).
- C Exterior Masonry
 - Eroded Mortar Joints - There are eroded mortar joints around the exterior of the building. The larger areas of eroded joints are located below the watertable and at the northwest corner on both elevations. The eroded mortar joints should be cut and pointed with a compatible mortar. This is a Priority Level 3 item.
 - Deteriorated Brownstone -The brownstone units at the front portico are in varying states of deterioration from the salts used to prevent ice on the stairs and entry. Presently the damage is cosmetic but eventually the wall could be undermined as the deterioration continues. It can be difficult to properly repair brownstone units, and the repairs will have a limited life. The worst of the deteriorated stones should be replaced before the deterioration becomes a structural issue.
 - Cracked Mortar Joints - In addition to the cracked brick masonry described above, there are some cracked mortar joints unrelated to the west wall settlement. These cracks are located above two of the second story windows on the east elevation and above one second story window on the south elevation. The cracked masonry should be dismantled and reset
 - Deteriorated Masonry - There are eroded mortar joints in both the brick and stone foundation and spalled brick units, this can be seen at both the foundation walls and interior piers. The exposed brick masonry in the northeast stairway also has eroded mortar joints and spalled bricks. In the upper turret room there is a crack in the interior brick masonry wall that is supported by steel beams. The eroded mortar joints should be cut and pointed with a compatible mortar and the worst of the spalled bricks replaced. The cracked masonry should be dismantled and reset.
- C HVAC
 - Add ventilation system.
 - Add ductless mini-split air conditioners, as they are quieter than through the wall air conditioners, plus are more efficient.
 - Install air separator near boiler.
- C Extensive use of PVC Conduit
 - Replace PVC conduit with steel pipe.

3.5 Existing Conditions Report - Priorities Summary

TOWN HALL ANNEX

- C Hazardous Materials Shed
 - Shed appears to be in good condition from the outside
- C Accessibility
 - If full compliance is required (due to cost of alterations exceeding 30% of the assessed value) additional alterations would be required, including the provision of a compliant ramp or lift to the upper area if it will be open to the public.
 - The accessible parking space in front of the building is identified by a sign, however it does not have the required marked parking space and access aisle, and in addition the sign is too low (less than 5' min. height required)(521 CMR 23.4.5 &).
- C Roof
 - South side of roof was replaced within the last 15 years
- C Walls
 - Overall wall condition is good
- C Ceilings
 - Lay in tiles are in good condition
- C Doors:
 - Wood doors and wood frames are in good condition
- C Exterior Conditions
 - Vertical crack at rear - There is a vertical crack in the joint between the original portion of the structure and the addition. The mortar within the joint should be cut out and replaced with sealant and backer rod.
- C LED Lighting
 - LED fixtures in Meeting Rooms. Replacement of former Garage Bay lighting is a low priority but meaningful step to improved efficiencies.
 - Add lighting control system for assembly area.
- C HVAC
 - Add wi-fi programmable thermostat to meeting room.
 - Add ventilation system.
 - Add ductless mini-split air conditioners, as they are quieter for meetings than through the wall air conditioners, and are more efficient.

PUBLIC SAFETY BUILDING

- C Fire Alarm System:
 - The existing fire alarm system can remain as long as it is properly maintained (IEBC 804.4.1 Exception). Improvements are only required if the building is open to the public and the renovation cost exceeds the 30% cost threshold in 521 CMR.

3.5 Existing Conditions Report - Priorities Summary

- C Stairs
- Stair handrails must be altered or replaced with handrails providing the required extensions at the top and bottom of the stair to comply with 521 CMR (521 CMR 27).
- C Accessibility
- If full compliance is required (due to cost of alterations exceeding 30% of the assessed value) alterations would be required to all areas open to the public, which may only include the rear entrance vestibule and fire department offices. The fire department entrance exterior steps are not accessible; a ramp would be required.
- C Roof
- Metal roof on fire station with aluminum gutters and leaders. The metal roof is in very good condition.
- C Exterior Walls
- Metal Siding. Excellent condition
- C Insulation
- New rigid insulation added under new metal siding at fire station.
- C Windows
- Double hung and awning. Good condition given their age.
- C Flooring
- VCT in the Police Station. Good condition
 - Rubber tile in Fire Station Office. Good Condition
- C Interior Walls
- Gypsum wall board in police. Good condition
 - Painted CMU & GWB in fire. Good condition
- C Ceilings
- Plaster skim coat in Police. Good condition.
- C Doors:
- Flush wood doors in metal frames. Good condition. Several doors are not ADA compliant – due to hardware and/or door clearances.
 - Flush metal doors in metal frames. Good condition.
- C Structural
- Multiple cracks in floor slabs - There are shrinkage and minor settlement cracks in the concrete floor slabs of the garage bays. While these are not of serious structural concern, they should be filled with fine grout to prevent shifting under wheel loads. There is also a patch in the front left corner of the left garage bay that appears to be settling under wheel loads. This will eventually need to be replaced.
- C HVAC
- Add ductless mini-split air conditioner to fire station office.
 - Add central ventilation system to the police station with the energy recovery unit located in the attic with ductwork run in attic.

3.5 Existing Conditions Report - Priorities Summary

- C Electrical
- Load Center Upper Floor: Sample of updates being made to load centers.
 - Radio Room updates made to accommodate technology improvements.
 - Fluorescent-tube to LED fixture replacement as a low priority but meaningful step to improved efficiencies.
 - Stand-by PWR Outlets: Adequate access to standby power generator.

PRINCETON CENTER

- C Ball Fields
- Good Condition overall
- C Sprinkler System
- Sprinkler protection is required throughout the building, unless it can be demonstrated that the water supply is not sufficient (MGL C. 148 Sec. 26G)
- C Fire Alarm System
- If a new sprinkler system is required, a new fire alarm system must be installed to properly monitor the sprinkler system and provide alarms throughout the building (780 CMR 903.4.2).
- C Stairs
- A Level 3 renovation requires full enclosure of all stairs in 1 hour rated construction at all levels, unless the building is full sprinklered (IEBC 903.1). All stair handrails and nosings must be altered or replaced to comply with 521 CMR (521 CMR 27).
- C Accessibility
- If full compliance is required (due to cost of alterations exceeding 30% of the assessed value) significant alterations would be required including the addition of an elevator or multiple elevators and lifts to provide wheelchair access to all floor levels. All toilet rooms and entrances would also have to be made accessible. The existing Basement toilet rooms are not accessible and the route leading to them includes various changes in level.
- C Structural
- Scattered masonry deterioration - There are randomly scattered pits and small cracks in mortar joints on fieldstone portion of the exterior. These are from a combination of early workmanship, shrinkage in the original mortar, and, to a greater extent, weathering deterioration. The pits should be filled, all softened mortar cut out and replaced, and the cracked joints should be cut and repointed. Roofing paper has deteriorated and roof is not weather tight.

Summary

JWA utilized a Space Programming Questionnaire to begin the data collection aspect for programming the uses outlined in this master plan. The questionnaire was distributed to departmental heads and/or representatives who could speak to the needs of that department. Over two days, JWA conducted interviews with these same questionnaire respondents to begin a dialogue about what these employees needed to optimize their town functions.

Town Offices & Community Use

Once it became clear that the desired option was to preserve, renovate and add on to Bagg Hall, JWA proposed schemes that ranged from “small,” or as efficient as possible to provide access to the second floor; to “large,” which includes more meeting and program space with the intent that Council on Aging and other community groups will have spaces to host programs. The FSC was unanimous in endorsing the largest of the Bagg Hall options to meet these needs. The resultant project square footage for this option is 10,289 GSF. The square footage targets based on the program are generally met, however, some spaces do fall short per the following matrix but are balanced with those spaces that exceed the programmed value. The omission in this current plan of the space need for “Shared Office & Storage for Other Boards” brings the average for programmed-to-met need to 87%. If this space is not necessary, the proposed scheme meets 97% of the programmed values including COA and Community Uses. Assuming the project moves forward, additional programming efforts will be required to prioritize these needs with the budget. The programming does assume reuse of the balcony for storage as this floor is not slated for lift or elevator access.

Public Safety Complex

Based on the original information received from the Police and Fire Chiefs, JWA had produced a program for a 17,000 GSF facility. Another round of mark-ups to the program by the chiefs resulted in a facility of nearly 19,000 GSF. However, once comparative data from surrounding and similarly sized communities was reviewed with the FSC, and the total project costs for these early versions was \$9M, the FSC directed JWA to revise the program to result in a total project cost of \$7M. The elimination of apparatus bays (with the ability for future expansion) and agreement by the Chiefs that Fire Station 2 would continue to provide a training space, the resulting facility size target is 11,700 GSF.

Board of Assessors

The Board of Assessors ensure that taxpayers pay an equitable tax.

Interviewed: Kathy Stanley, Terri Longtine

Employees: 1 PT, 1 PT

Kathy is Principal Assessor at 20 hours per week.

Terri is full time, however devotes time to BOH, office management and billings for Fire.

Hours of Operation: Mon-Thurs 8am-4pm and Tues evenings

Public Interface: Counter is needed

Sometimes privacy is required

Visitors per Day: 10

Meeting Needs:

Number of Attendees			Frequency		
1 to 3	4 to 7	8 or more	Daily	Weekly	Monthly
	x				1

Adjacencies: Collector/Treasurer, Accounting, Building

File Needs: (8) 4-dwr - field cards
(4) 4-dwr - depart. files
Maps cabinet for 24" x 26" maps

Vault Use: Yes - original maps

Issues: Desire for some separation between office function and public function; a counter would be ideal and keep the public from entering the office space. There is also a need for a map table for public to use when viewing maps. This need might also be addressed with a computer station dedicated for this purpose. Additionally, having all of files in one place is desired.

Space Needs:

Space Needs (SF)					
Current Space Allotted (Bagg + Annex)	Work Station Area	File Storage & Access	Counter, map viewing	In-office Meeting	Proposed Total NET
147	80	47	60	0	187

4.2 Space Needs Analysis

Town Hall Departments

Board of Health

Maintains septic, well, restaurant inspection reports, and handles licensing and permitting

Interviewed: Terri Longtine

Employees: 1 PT

Terri is full time, however devotes time to Assessors, office management and billings for Fire.

Hours of Operation: Mon-Thurs 8am-4pm

Public Interface: Counter is needed

Visitors per Day: 6

Meeting Needs:

Number of Attendees			Frequency			
1 to 3	4 to 7	8 or more	Daily	Weekly	Monthly	
		x			2	Monday evenings

Adjacencies: Building

File Needs: (6) 4 dwr cabs - files on every building in town

Vault Use: N/A

Issues: Desire for some separation between office function and public function; a counter would be ideal and keep the public from entering the office space.

Space Needs:

Space Needs (SF)					
Current Space Allotted (Bagg + Annex)	Work Station Area	File Storage & Access	Counter, map viewing	In-office Meeting	Proposed Total NET
included w/ Assessors	80	41	0	0	121

Building Department

Issues building, plumbing, electrical permits for projects throughout town; schedules inspections and sets meetings up for Building, Plumbing and Electrical inspectors.

Interviewed: Ginger Toll & Linda Albrecht (recently retired)
Ginger also answers Town Hall general number and provides assistance to Treasurer/Tax Collector and Accounting.

Employees: 1 FT
3 PT Inspectors

Hours of Operation: Mon-Thurs 8am-4pm + Wed 5pm-7pm

Public Interface: Meet with inspectors at a desk or table; space to review plans

Visitors per Day: 2-4

Meeting Needs:

Number of Attendees			Frequency			
1 to 3	4 to 7	8 or more	Daily	Weekly	Monthly	
	x				2	Wed evenings

Adjacencies: Assessor, Land Use

File Needs: (5) 2 dwr files in office
(6) 4 dwr cabs in corridor
Plan storage needed for approx. 60 drawing sets

Vault Use: N/A

Issues: Storage for needed files and plans near to work space

Space Needs:

Space Needs (SF)					
Current Space Allotted (Bagg + Annex)	Work Station Area	File Storage & Access	Counter, map viewing	In-office Meeting	Proposed Total NET
191	140	81	0	0	221

Building Maintenance

Maintain town buildings and related systems and equipment using "in-house" labor and contractors as needed

.	
Interviewed:	Philip Connors Phil is also an on-call Firefighter/EMT and on-call with Highway Department
Employees:	1 FT + 1 FT employee during winter months
Hours of Operation:	Mon-Fri 7am-3:30pm
Public Interface:	N/A
Visitors per Day:	N/A
Meeting Needs:	N/A
Adjacencies:	N/A
File Needs:	(1) 2-dwr file cabinet Bookcase for maintenance manuals
Vault Use:	N/A
Issues:	Currently this position does not have a home base. Phil works out of his truck and utilizes storage areas in the various municipal buildings where he can find it.
Space Needs:	Approximately 300 SF for a workshop space and small office area (desk, file cabinet and bookcase)

Cemetery Department

The Cemetery Department is responsible for cemetery lot sales, burial scheduling and revenue collection. The Cemetery Commission maintains the public cemeteries in Princeton.

Interviewed: Lynne Grettum
Employees: 1 PT Cemetery Superintendent (no office space in Town Hall)

Hours of Operation: As needed by appointment
Public Interface: Yes; by appointment

Visitors per Day: N/A
Meeting Needs:

	Number of Attendees				Frequency			
	1 to 3	4 to 7	8 or more		Daily	Weekly	Monthly	
Cemetery Commission		x					1	Monday evenings

Adjacencies: Town Clerk

File Needs: Included with Town Clerk needs

Vault Use: N/A

Issues: Currently the Cemetery Superintendent works from home and conducts meetings at the cemeteries. Space needs are minimal and this function needs to be housed in Town Hall.

Space Needs:

Space Needs (SF)					
Current Space Allotted (Bagg + Annex)	Work Station Area	File Storage & Access	Counter, map viewing	In-office Meeting	Proposed Total NET
25	40	0	0	0	40

Land Use (Planning, Conservation Commission, ZBA)

Includes all management, administration, reporting and scheduling activities for Planning Board, Conservation Commission and Zoning Board of Appeals.

Interviewed: Marie Auger
Employees: 1 PT

Marie also handles billing for the Highway Department, Selectboard support and graphic design tasks as needed.

Hours of Operation: Mon-Thurs 8am-4pm
Public Interface: Need for a table to use for plan review

Visitors per Day: 1-5

Meeting Needs:

	Number of Attendees			Frequency			
	1 to 3	4 to 7	8 or more	Daily	Weekly	Monthly	
Planning Board		x				2	
Conservation Commission		x				1	
ZBA		x					2x year

Adjacencies: Conservation Commission

File Needs: (1) 4 dwr vertical files - currently in Annex
(4) 4 dwr vertical files - currently in Office
(1) 5 dwr vertical files - currently in Corridor
Maps cabinet or rack

Vault Use: N/A

Issues: There is a need for a table or designated space for review of plans and a map storage cabinet or rack.

Space Needs:

Space Needs (SF)					
Current Space Allotted (Bagg + Annex)	Work Station Area	File Storage & Access	Counter, map viewing	In-office Meeting	Proposed Total NET
50	80	48	0	0	128

Information Technology

The IT department is responsible for monitoring network performance; fixing computer issues; back-up of data and maintaining best practices for Town Hall departments and Highway Department.

Interviewed: Peter Cummings
Employees: 1 PT (10 hours/week)

Hours of Operation: Wednesday 8am-4:30pm onsite + remote hours

Public Interface: N/A

Visitors per Day: N/A

Meeting Needs: N/A

Adjacencies: N/A

File Needs: N/A

Vault Use: N/A

Issues: Need for a locked closet for the server, switches and routers.
Minimal space needs; can be in a shared office space.

Space Needs:

Space Needs (SF)					
Current Space Allotted (Bagg + Annex)	Work Station Area	File Storage & Access	Counter, map viewing	In-office Meeting	Proposed Total NET
25	40	0	0	0	40

Parks & Recreation

Promotes and markets Parks and Recreation's facilities and programs. Coordinates facilities and recreational programs with individuals, agencies, organizations and sports clubs as well as scheduling facilities which include Thomas Prince School, Krashes and Everett Needham fields.

Interviewed: Hollie Lucht
Employees: 1 PT (approx. 20 hours/week)

Hours of Operation: Mon-Thurs 8am-11am + by appointment
Public Interface: In-person meetings are by appointment

Visitors per Day: 1
Meeting Needs:

Number of Attendees			Frequency		
1 to 3	4 to 7	8 or more	Daily	Weekly	Monthly
x				1	

Adjacencies: Council on Aging

File Needs: 1 (4) dwr file

Vault Use: N/A

Issues: Parks and Recreation is limited in its ability to offer programs due to lack of space. For programs such as sewing, art, and woodworking, the Thomas Prince School is the only option and that is limited to afterschool hours. more available space would allow for more programs, such as dance, "Mommy & Me," etc.
Currently works from Annex office, not connected to Town Hall.
Cites a need for storage for program materials: 400 SF that is currently stored in the attic of the building at Everett Needham field.

Space Needs:

Space Needs (SF)					
Current Space Allotted (Bagg + Annex)	Work Station Area	File Storage & Access	Counter, map viewing	In-office Meeting	Proposed Total NET
267	80	7	0	0	87

Town Accountant

Accounting manages the municipal accounting systems; assists with procurement and budget processes and maintains internal auditing and control processes.

Interviewed: Jenny Lin

Employees: 1 FT + 1PT

Jenny's position is 30 hours/week with 10 hours of support from Ginger Toll.

Hours of Operation: Mon-Thurs 7:30am-3pm

Public Interface: By appointment

Visitors per Day: 1-3

Meeting Needs: N/A

File Needs: (2) 4-dwr vertical files
(1) 2-dwr lateral file
(10) 5-dwr VFs to be stored in Vault

Adjacencies: Treasurer/Tax Collector, Assessor and Town Administrator

Vault Use: Need for (10) 5-dwr VFs to be stored in Vault

Issues: Need for a small meeting space within the office as accounting issues require privacy.

Space Needs:

Space Needs (SF)					
Current Space Allotted (Bagg + Annex)	Work Station Area	File Storage & Access	Counter, map viewing	In-office Meeting	Proposed Total NET
102	80	21	0	35	136

Town Administrator & Selectboard

The Selectboard is the executive branch of government and is charged with the management and general direction of the Town. The Town Administrator is responsible for implementing and goals of the Selectboard and administers and oversees the day-to-day functions provided by town government.

Interviewed: Nina Nazarian

Employees: 1 FT

Hours of Operation: Mon-Thurs 8am-4pm

Public Interface: Frequent via phone and in person

Visitors per Day: 1-5

Meeting Needs:

	Number of Attendees				Frequency			
	1 to 3	4 to 7	8 or more		Daily	Weekly	Monthly	
Town Administrator & Selectboard		x					2	
Town Meeting			x					2x year

File Needs: (2) 2-dwr vertical files
(3) 4-dwr vertical files
Possibly fewer are needed

Adjacencies: Not really applicable is Town Administrator oversees all departmental employees

Vault Use: N/A

Issues: A need for a small meeting space either in-office or in a small conference space close by.
A need for privacy is critical for this position.

Space Needs:

Space Needs (SF)					
Current Space Allotted (Bagg + Annex)	Work Station Area	File Storage & Access	Counter, map viewing	In-office Meeting	Proposed Total NET
142	80	34	0	120	234

Town Clerk & Board of Registrars

The Town Clerk maintains and preserves official municipal and vital records; issues licenses and permits and acts on behalf of the Board of Registrars to register voters. As the chief election official, is responsible for the administration of all local, state and federal elections. This position also supports the Cemetery Department.

Interviewed: Lynne Grettum
Employees: 1 FT

Hours of Operation: Mon and Wed 8am-3:30pm + Tues 8am-7pm + Thurs 8am-12pm
Public Interface: Transaction Counter is needed

Visitors per Day: 1-5
Meeting Needs:

Number of Attendees			Frequency			
1 to 3	4 to 7	8 or more	Daily	Weekly	Monthly	
	x					occasional

Adjacencies: Vault

File Needs: (4) 4-dwr vertical files
Closet for voting machines (8 SF); and 1 closet for voting booths (18 SF)
and Vault Storage for vital records

Vault Use: Currently utilizes 1/3 of existing Vault space and more space is required for vital records and election ballots. Need is for approx. 75 SF

Issues: Secure storage and access to it is most critical issue.
Also a need for space for Secretary of the Commonwealth desk top computer

Space Needs:

Space Needs (SF)					
Current Space Allotted (Bagg + Annex)	Work Station Area	File Storage & Access	Counter, map viewing	In-office Meeting	Proposed Total NET
133	100	27	0	35	162

Treasurer/Tax Collector

This position is responsible for billing and collecting real estate, MV excise and personal property taxes as well as managing the financial activities of the Town; banking, borrowing, etc.

Interviewed: Jim Dunbar

Employees: 1 FT + 1PT assistant

Hours of Operation: Mon-Wed-Thurs 8am-4pm + Tues 8am-4pm and 5pm-8pm
Fri 8am-1pm (not open to public)

Public Interface: Transaction counter is desired

Visitors per Day: 5-20 (more in October and April)

Meeting Needs: Small meeting space would be ideal in office or in conference room

Adjacencies: Assessors, Accounting

File Needs: (2) 2-dwr vertical files
(2) 4-dwr vertical files
(2) 5-dwr vertical files
(2) 4-dwr lateral files

Vault Use: Needs shelving for 15 bankers boxes of records and 1 large cabinet; approx. 50 SF
Payroll records must be stored in perpetuity.

Issues: Assistant needs to be in same office or close by; this is not the case currently.
A need for a small meeting space either in-office or in a small conference space close by.

Space Needs:

Space Needs (SF)					
Current Space Allotted (Bagg + Annex)	Work Station Area	File Storage & Access	Counter, map viewing	In-office Meeting	Proposed Total NET
132	140	53	0	35	227.5

Veterans Services

This position provides services for town Veterans and their families as needed Benefits Outreach.

Interviewed: Sarah Custer
Employees: 1 PT (hours are as needed)

Hours of Operation: N/A
Public Interface: As needed

Visitors per Day: by appointment

Meeting Needs:

Number of Attendees			Frequency			
1 to 3	4 to 7	8 or more	Daily	Weekly	Monthly	
x						by appt.

Adjacencies: N/A

File Needs: 1 lockable desk file drawer

Vault Use: N/A

Issues: A need for a small meeting space; use of a desk, and an area to display information regarding Veteran's benefit information

Space Needs:

Space Needs (SF)					
Current Space Allotted (Bagg + Annex)	Work Station Area	File Storage & Access	Counter, map viewing	In-office Meeting	Proposed Total NET
0	40	0	0	0	40

Other Boards & Committees

File and meeting needs were provided by the following volunteer boards and committees: Open Space, Personnel, Cultural Council, Road Advisory Committee, Environmental Action Committee, Historical Commission, Library (programs), Trustee of Trust Funds, Agricultural Commission, Broadband Municipal Light Plan and the Facilities Steering Committee.

Interviewed: Via questionnaire
Employees: N/A

Hours of Operation: N/A
Public Interface: N/A

Visitors per Day: N/A

Meeting Needs:

	Number of Attendees			Frequency			
	1 to 3	4 to 7	8 or more	Daily	Weekly	Monthly	
Open Space Committee			x			1	
Personnel Board		x					as needed
Cultural Council							1 to 3 times/year
Road Advisory Committee		x				1	
Environmental Action Committee			x			2	large meetings (50-100) occasionally
Historical Commission		x				1	
Library (Programs)			x				frequency???
Trustee of Trust Funds		x					irregular meetings
Agricultural Commission		x				1	
Broadband Municipal Light Plant		x				2	
Facilities Steering Committee		x			1		

Adjacencies: N/A

File Needs: (5) 2-dwr vertical files
(2) 4-dwr vertical files

Vault Use: N/A

Issues: A need for a small meeting space either in-office or in a small conference space close by.

Space Needs: Space for 3 shared work stations; approx. 250 SF

Support Spaces

SPACE	Notes	SF NEED
Vault	Utilized by Clerk, Assessors, Treasurer and Accountant	250
Small Conference	Annex	180
Large Conference		250
Large Meeting Room	Annex	1524
Copy/Mail Area		80
Kitchenette		150
Building Storage (Bagg)		300
Building Storage (Bagg Balcony)		600
Building Storage (Annex)		0
Shared Office & Storage for Other Boards	Need space for 3 workstations	250

4.2 Space Needs Analysis

Town Hall Departments

Town Hall Summary

SPACE	BAGG HALL EXISTING	ANNEX EXISTING	DESIRED AREA / NET SQUARE FEET	OPTION 1	OPTION 2	OPTION 3 - PREFERRED OPTION
Board of Assessors	147	0	187	257	247	201
Board of Health	included in BOA	0	121	included in BOA	included in BOA	included in BOA
Building Department	191	0	221	Inc w/Shared 2	191	247
Building Maintenance*	0	0	0	0	0	0
Cemetery Department	25	0	40	Inc w/Shared 1	Inc with Shared	Inc with Shared
Land Use (Planning, Con Comm, ZBA)	50	0	128	Inc w/Shared 1	Inc with Shared	Inc with Shared
IT	25	0	40	Inc w/Shared 1	Inc with Shared	Inc with Shared
Parks & Recreation (uses Annex)	0	136	87	79	100	112
Town Accountant	102	0	136	141	137	141
Town Administrator	142	0	234	197	170	139
Town Clerk/Board of Registrars	133	0	162	190	190	190
Treasurer/Tax Collector	132	0	228	191	170	191
Veterans Services	0	0	40	Inc w/Shared 1	Inc with Shared	Inc with Shared
Shared Space	0	0	350	350	350	350
SUPPORT SPACES:						
Vault	113	0	250	230	240	250
Small Conference	0	267	180	137	126	77
Large Conference	0	0	250	182	275	244
Large Meeting Room	0	1,050	1,524	1,523	1,465	1,530
Copy/Mail Area	0	0	80	128	Inc with Small Conference	101
Kitchenette	35	0	150	100	236	154
Building Storage (Bagg General)	1,000	0	300	258	390	278
Building Storage (Bagg Balcony)	600	0	600	600	600	600
Building Storage (Annex)	250	0	0	0	0	0
Shared Office & Storage for Other Boards	0	120	250	0	0	0
Council on Aging Director	0	0	120	0	100	112
Program/Meeting Space	0	0	700	0	602	723
Program/Meeting Space	0	0	250	0	130	224
NET USED SQUARE FEET	2,945	1,573	6,628	4,563	5,719	5,864
Gross SF Bagg Hall Only	6,355					
TOTAL Gross Square Feet*	7,928		9,279	7,405	9,664	10,289
* Includes Annex spaces utilized by Town Hall Departments + Bagg Hall GSF						

Princeton's Council on Aging provides services and activities that enhance the lives of Princeton's senior population. According to the data provided by MA Executive Office of Elder Affairs, Princeton's over-60 population is 20%:

City/Town	POPULATION										2010 Ranking for 60+		Ranking: Rate of Percent Change 2000-2010		
	Total	60-64 years	65-74 years	75-84 years	85 years and over	60+	65+	60+	65+	85+	1=Highest; 351=Low est		1= Greatest increase; 351=Greatest lost		
	Number	Number	Number	Number	Number	Number	Number	Percent	Percent	Percent	Numeric	Percent	60+	65+	85+
Princeton	3,413	292	251	109	38	690	398	20.2	11.7	1.1	275	206	23	67	179

Interviewed: Linda Farineau
Employees: 1 PT

Hours of Operation: Tues – Wed 9 am-3 pm
Thurs 9 am – 1 pm

Public Interface: Yes - programs

Visitors per Day: Dependent on programs offered
Meeting Needs: Director needs private space to conduct meetings; could be part of office

Issues: Currently, the COA occupies rented space = 1,095 SF at Post Office Place in town. The Princeton Arts Society and Parks and Recreation Department are natural partners with COA and have similar space needs for the programs they offer and hope to offer more programs if space and scheduling permit. Additionally, the Library and Princeton Historical Society, though not departments included in this study, have a serious need for more program space. All proposals recommend co-locating COA uses with Town Hall or on the same site. This will allow for maximum overlap of uses in a space but will require careful scheduling.

A need for 30 parking spaces near to the COA entrance is critical for serving this population.

Some programs and services include:

- Monthly lunch that attracts 20-30 people
- Exercise classes
- Crafts classes
- Art Shows (with Princeton Arts Society)
- Blood pressure and foot care clinic

4.3 Space Needs Analysis

Council on Aging & Community Uses

Space Needs:

SPACE	NOTES	PROPOSED AREA
Reception/Coats	Near main entry	200
Director's Office	Office space for 1 including a small meeting table and file storage	200
Large Activities Room	Activities room to accommodate 60 for monthly lunches and be sub-dividable for small group activities	1000
Small Program Room	Used for smaller activities and foot care and blood pressure clinic. Sink is needed.	150
Medium Program Room		200
Kitchen	Warming and prep for monthly lunches: sink, oven, refrigerator, microwave and dishwasher. Commercial kitchen is not required.	250
Restrooms		100
Storage 1	Food service and cleaning supplies including 60 banquet chairs, tables and holiday decorations	80
Storage 2	Exercise equipment: balls, hand weights and mats	80
Storage 3	Office supplies, loaner equipment (walkers, shower chairs, wheel chairs)	80
Storage - Princeton Arts Society	Shared with COA. Space for popular Portrait Group (30-40 participants) and gallery space is needed	80
NET SQUARE FEET		2,420
TOTAL Gross Square Feet	Grossing factor assumed: 1.33	3,219

Police

The Police Department primary function is to protect citizens from harm and danger; advocate for victims of crime and promote the accountability of criminals by enforcing laws set forth by the town, state and country. The Police also respond to 911 calls, interview witnesses and victims of crimes

Interviewed: Michele Powers, Chief

Employees: 6 FT, 9 PT, 1 FT Admin Assistant

Hours of Operation: 24/7

Public Interface: Yes – in the field and at the station

Public comes to the station for reports, gun permits, drug kiosks, interviews, directions, forms to report a crime and community outreach (preschool tours, Girl Scouts, Boy Scouts)

Visitors per Day: 1-5

Meeting Needs: Need for a space for 3-5 people up to 10x/week

Storage Needs: File needs for reports

Evidence storage

Fire arms and related equipment storage

Lockers for officers

Issues: The single biggest challenge cited by Chief Powers is lack of a holding cell for the reasons listed below. The department is also struggling with adequate and secure storage for files, evidence and vehicles as well as spaces for private conversations. These concerns and other are listed in the matrix below.

Police and fire department chiefs are in agreement that sharing a facility makes the most sense from a functional and spatial standpoint.

Issue	Safety?	Function?	Explanation
No Holding Cell	X	X	Lock-up occurs in open office space – dangerous for Administrative Assistant who is not a trained police officer.
No Holding Cell	X	X	Officers issue citations in lieu of making arrests due to the fact that there is not a good solution for holding someone
No Holding Cell		X	Officers must find alternate location for arrestees in other towns which is time intensive first to find a town willing to accept a prisoner and as an officer must perform prisoner watch off –site

4.4 Space Needs Analysis

Public Safety

Issue	Safety?	Function?	Explanation
Insufficient Covered Parking		X	Shortage of covered parking for 4 police vehicles; currently only 1 garage space. Need for covered space to improve response time in winter conditions as officers must currently spend time clearing off vehicles
No Booking Space	X	X	No space to process an arrestee safely
No Interview Space		X	Police need the ability to have a safe, quiet space for interviews which are confidential conversations
Unwelcoming Entry	X	X	As a public building, it is difficult to find the way into the station; for a person reporting a crime may be a safety/response time issue
Inadequate Firearm Storage	X	X	Secure firearm storage area is currently insufficient
No Training Room		X	No ability to have on site trainings; must go off site
Inadequate File Storage		X	Evidence and file storage is inadequate; currently occupy space in Annex
Inadequate Separation of Genders		X	Female officers do not have separated locker space
No Bunk Space	X	X	No overnight space for major emergencies or overnight calls.

Fire

The Princeton Fire and EMS Department is responsible for providing the Princeton residents and surrounding mutual aid towns with fire protection and suppression services along with Advanced Emergency medical Care response. Additionally, the Fire Department offers facilities for sheltering and emergency command operations and staging areas.

Interviewed: John Bennett, Chief
Employees: 1 FT; 1 PT Chief; 32 Call Force

Hours of Operation: 24/7
Public Interface: Yes – in field and at station
SAFE education, CPR and First Aid education

Visitors per Day: N/A
Meeting Needs: Space for Training for 40 (accommodated at Fire Station #2)

Storage Needs: Secure storage is required for EMS supplies and narcotics and emergency management supplies

Issues: Chief Bennett outlined several issues that prevent the Princeton Fire Department from functioning optimally and safely per matrix below. The Fire Department utilizes 2 fire stations; the one located in Princeton Commons Center (the subject of this study) and Station #2, located on Route 140. Built in 1983, Station #2 also does have concerns, however, the Chief believes it is a benefit to the town to have the 2 stations at different elevations and locations allowing the department to minimize response times. Police and Fire department chiefs are in agreement that sharing a facility makes the most sense from a functional and spatial standpoint.

Issue	Safety?	Function?	Explanation
No Decontamination System	X	X	Required for removal of carcinogens from firefighters and gear
No Gear Washer/Dryer	X	X	Required for removal of carcinogens from firefighter's gear
No Vehicle Exhaust Removal	X	X	Negatively impacts air quality in the station
Insufficient Gear Storage	X	X	Need for separation between fire turnout gear and improperly vented vehicle spaces and work spaces
Truss Deformation	X	X	Extreme deformation and overstress of truss spanning over garage bays
Lack of Secure Storage	X	X	Lack of secure climate controlled EMS storage space for narcotics and other supplies
Lack of Secure File Storage		X	Securable office space required for HIPPA information and is currently insufficient
Inadequate Office Space	X	X	Currently desks and computers are located in garage bays exposed to chemicals, carcinogens and vehicle exhaust

4.4 Space Needs Analysis

Public Safety

Issue	Safety?	Function?	Explanation
Inadequate Separation of Genders		X	No space for female firefighters
No Training Room		X	No ability to have on site trainings; must go off site to Station #2
No Bunk Space	X	X	No overnight space for major emergencies or overnight calls. Firefighters forced to sleep on cots or in trucks.
No Real Public Entry	X	X	Lack of separation between public and private spaces/functions
No Hose Drying Facility		X	Lack of system or means to properly dry hoses causes functional issues with hose and early degradation
Truck Bay Doors Low		X	Doors to truck bays are too low to accommodate modern fire trucks; it's a very tight fit to get apparatus safely into the station
Inadequate Day Room		X	Lack of an adequate dayroom with cooking facility
Inadequate Storage		X	Overall lack of storage for vehicles, gear, and supplies leads to early replacement of vehicles and gear

4.4 Space Needs Analysis

Public Safety

SPACE	EXISTING	PROPOSED AREA / NET SQUARE FEET	POLICE/FIRE MARK-UP 2	REDUCED PLAN 1.24.18	COMPARABLE COMPLEXES					
					Sunderland	Sunderland NOTES	Hadley	Hadley NOTES	Paxton	Paxton NOTES
Shared Vestibule	0	80	60	0	0		76		0	
Shared Public Lobby	122	300	250	179	122		405		318	
Shared Training Room Seating for 40	0	1,000	700	Station 2	625	Space for 40	589	2nd floor; Seating for 30	998	No public use
Shared Conference Room Seating for 10	0	250	200	291	0		300	2nd floor location	310	
Shared Fitness Room	724	400	750	617	430		728	Estimated	1,148	
Shared Break Room	100	300	250	227	140		252		480	Separate break/day rooms
Men's Room	100	50	50	66	100	2 toilet rooms	142	2 locations + 1 Unisex	200	Unisex
Women's Room	0	50	50	66	50		100		0	Included above
Shared Lockers (M)	70	300	400	300	472	Shared with Fire. Locker and Showers are 2 separate rooms	331		281	Locker facilities not shared
Shared Lockers (F)	0	200	200	200	117	Shared with Fire	197	Shared with Fire	241	Locker facilities not shared
Police Chief Office	99	250	220	262	165		290	2nd floor separate from other officers	195	
Police Admin Asst	80	120	100	160	164	Clerk	0		165	
Police Clerk/Dispatch	0	180	180	192						
Police Sergeant	94	120	140	117	0		118		685	Includes Detectives
Police Open Office 5 workstations	350	500	500	489	146	1 office shared by 4	341	Space for 4	848	Includes Dispatch and Squad Rooms
Police Interview Room	0	120	100	148	0	Part of Booking	186	2 rooms	363	3 rooms
Police Booking Room	0	100	100	197	181		103		311	
Police Secure Storage - Files	189	150	250	0	149		223		117	
Police Radios & Equipment	300	100	300	75	73		61		115	
Police Firearms Storage	10	80	80	75	0	Lockers in wall in corridor and garage	30		123	
Police Evidence Storage	35	250	250	230	231	Off of Garage and 2 small rooms	278		340	
Police Lock-up	0	80	80	110	277	3 Male, 1 Female/Juv	321	5 cells at approx. 63 SF each	370	3 cells
Police Sallyport	0	400	800	443	721		725		596	1 vehicle
Police Vehicle Bay(s) Assumes 2 bays	381	800	0	0	0		0		1,476	Plus covered area outside for 7 vehicles
Fire Chief Office	247	250	250	236	173		290		215	
Fire Admin Asst. w/Chief	0	120	120	120	164		310	Shared with Deputy	235	
Fire Deputy Chief Office	0	120	120	120	0		0		261	2 offices
Fire Captain & Lts. (2)	0	180	180	170	160		85	No real office space for anyone by Chief	232	
Fire Gear Storage	0	300	300	256	0	Included in lockers in Apparatus Bay	261		383	
Fire Bunk Rooms (2) 2 bunks per room	0	180	300	190	0		0		400	Approximate area
SCBA Equipment Room	0	120	120	139	0	Included in alcove in Apparatus Bay	0	In Apparatus Bay	130	
Medical Equipment Room	0	100	100	100	0	Locked in Office	43		90	
Laundry	0	80	80	inc w/ Fire Gear	0	Included in alcove in Apparatus Bay	0	Included in Storage Room	61	
Shared Lockers (M)	0	300	0	0	0	Shared with Police	190		692	Locker facilities not shared
Shared Lockers (F)	0	200	0	0	0	Shared with Police	0	Shared with Police	215	Locker facilities not shared
Fire Appartus Bays 6 bays reduced to 4 bays	2,069	3,600	4,320	3,358	4,616	6 bay drive through	3,778	6 bay (partial) drive through	7,037	Not drive through
Shared IT Room	0	80	80	75	0		100	Estimated; newly constructed	76	
Building Storage	100	200	1,500	250	200		318	Several small rooms	587	Much capacity top floor
Hose Drying Space	0	100	100	0	0		66	Mezzanine over Apparatus bay	0	Apparatus bay has radiant floor heat; hoses laid out on floor for drying
Building Maintenance	0	327	300	0	0		0	Part of Storage	394	
Electrical & Mechanical Spaces	180	400	400	139	327		325	Several small rooms	606	Mezzanine location
NET SQUARE FEET	5,250	12,837	14,280	9,597	9,803		11,562		21,294	
TOTAL Gross SF	6,455	17,073	18,992	11,700	11,830		16,175		25,000	
	PRINCETON: 1 Police station & 2 Fire stations Police: 6 FT, 9 PT, 1 FT Admin Asst Fire: 1 FT ; 32 Call Force				SUNDERLAND: Single facility for Police & Fire Police - 5 FT, 8 PT Fire - 1 PT Chief and 20 Call Force		HADLEY 1 Police station and 2 Fire stations Police - 20 FT Fire - 6 FT + 20 Call Force		PAXTON Single facility for Police & Fire Police - 16 FT Fire - 8 FT, 3 PT (incl chiefs)	

Town Hall/Council on Aging & Community Uses

JWA produced three options for addressing town hall department needs as well as the program needs associated with Council on Aging and other community uses. These schemes are described as follows:

Option 1 – Small Addition

Space for COA and Community Uses not included

Total Square Footage: 7,405 SF

Option 2 – Medium Addition

Space for COA and Community Uses included

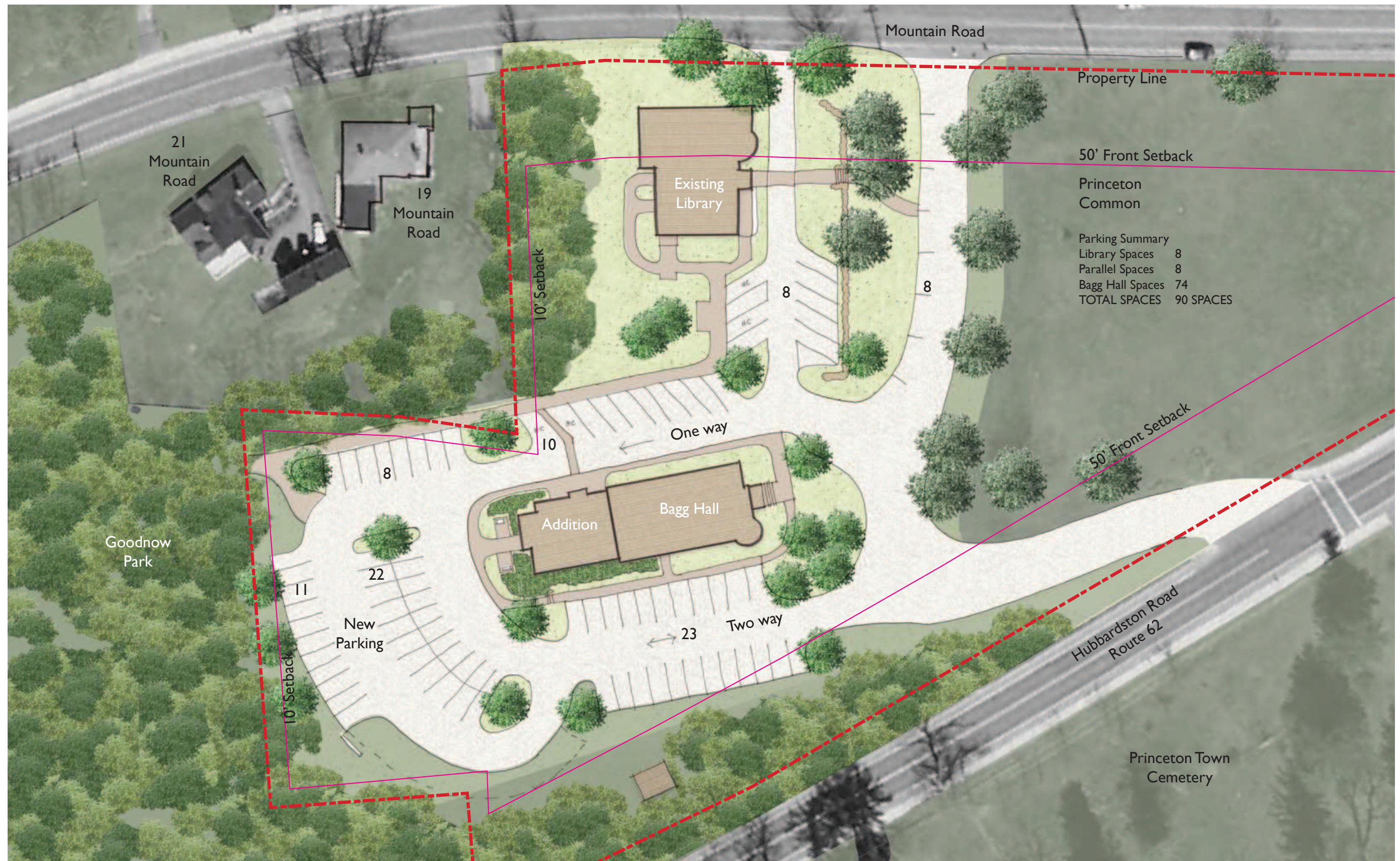
Total Square Footage: 9,664 GSF

Option 3 – Large Addition

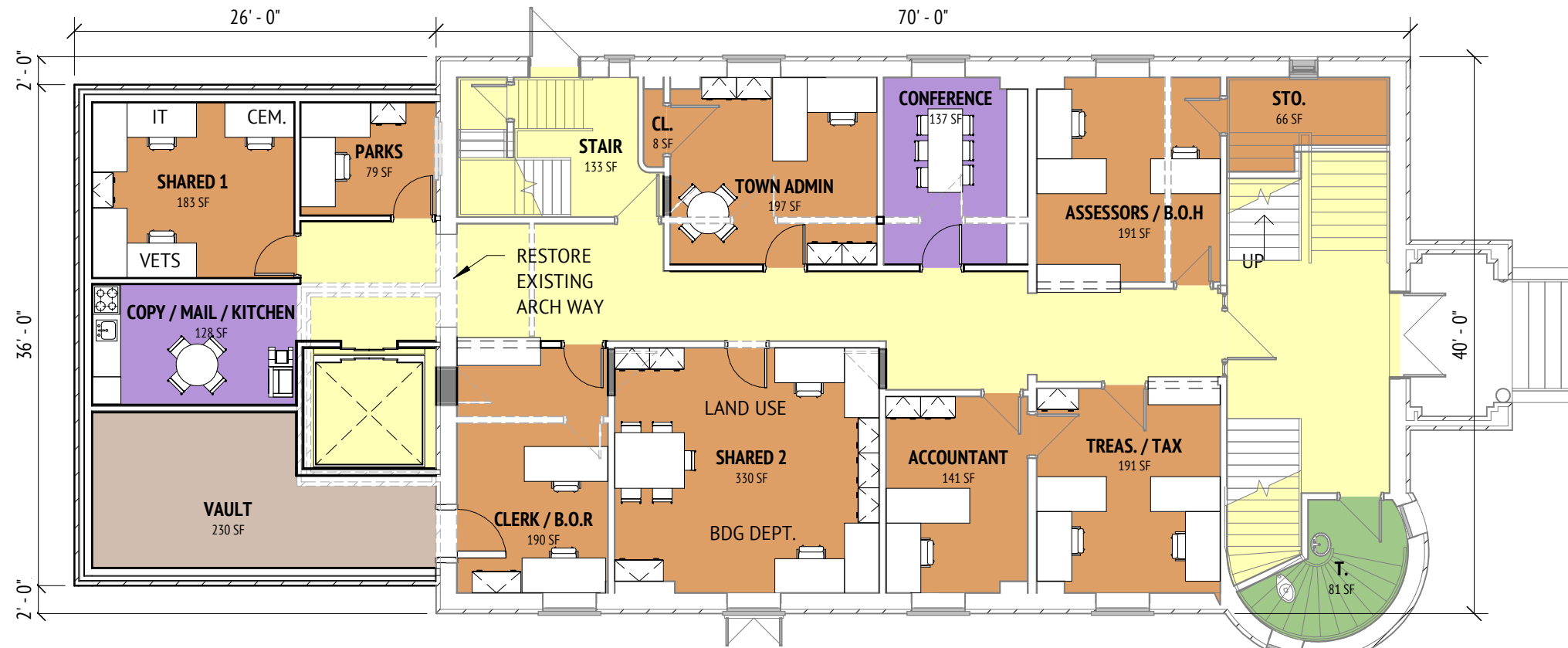
Space for COA and Community Uses included

Total Square Footage: 10,290 GSF

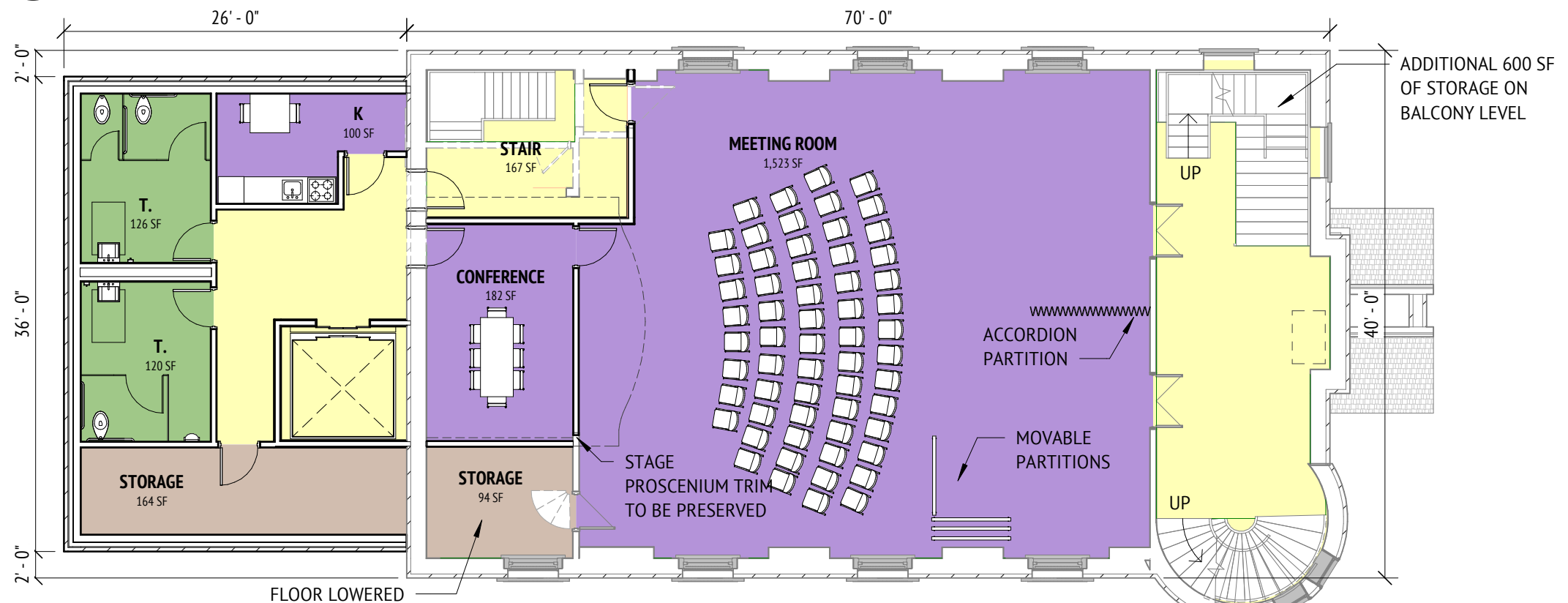
Site plans were developed for each of these options. Once the phasing options were developed, an additional site plan was developed to depict how Phasing Option C would affect the plan for the Bagg Hall addition given that it would need to be built with the Public Safety Complex remaining in place.



**PRINCETON COMMON SITE
OPTION 1 - SMALL ADDITION**



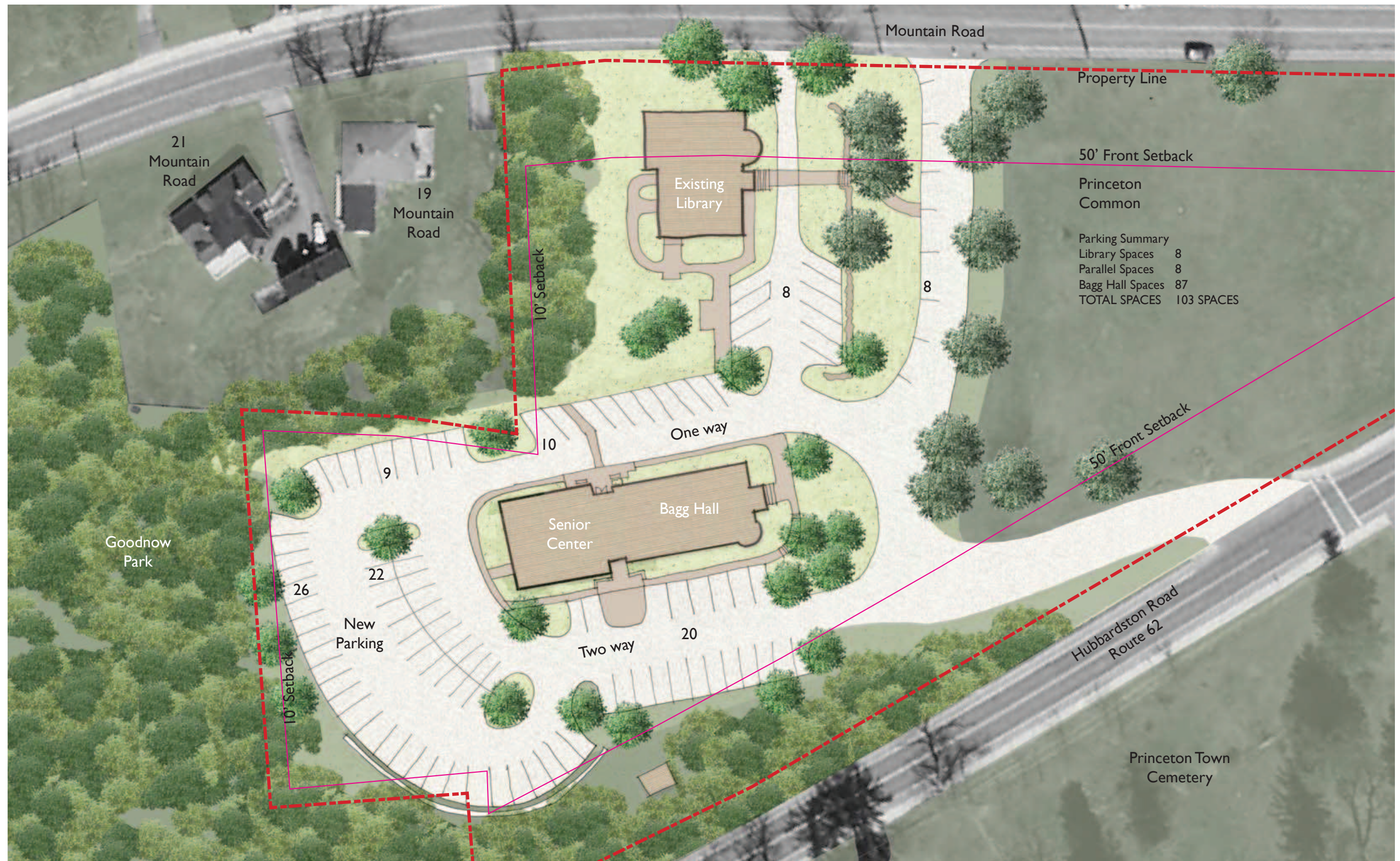
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3/32" = 1'-0"



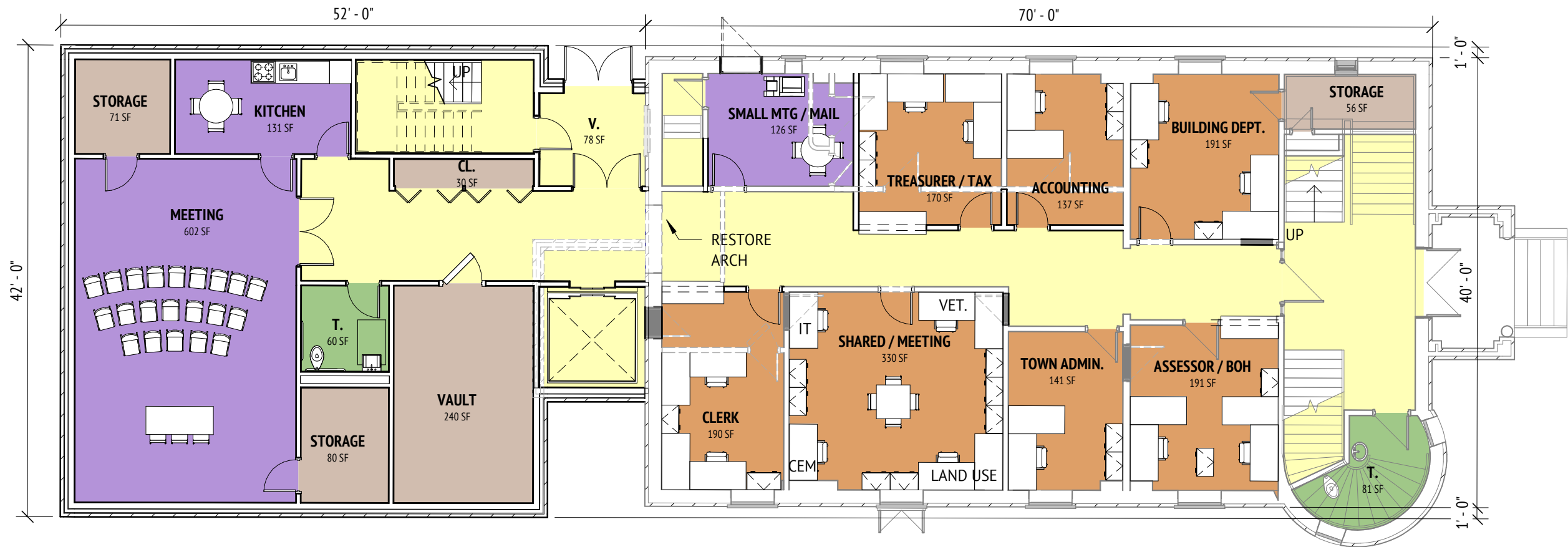
2 Level 2
3/32" = 1'-0"

OPTION 1 TOTALS		
	AREA	LEVEL
NEW	936 SF	LEVEL 1
NEW	933 SF	LEVEL 2
RENOVATION	2,768 SF	LEVEL 1
RENOVATION	2,768 SF	LEVEL 2
	7,405 SF	

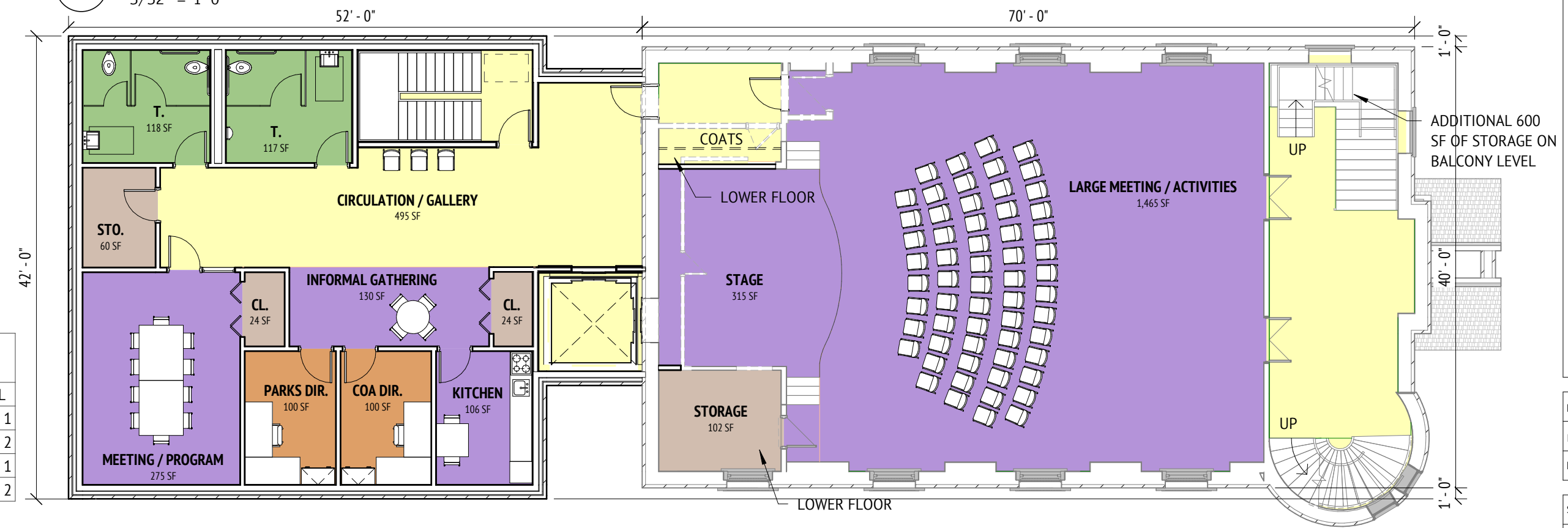




**PRINCETON COMMON SITE
OPTION 1 - MEDIUM ADDITION**



1 Level 1
3/32" = 1'-0"



2 Level 2
3/32" = 1'-0"

OPTION 2 TOTALS		
	AREA	LEVEL
NEW	2,063 SF	LEVEL 1
NEW	2,065 SF	LEVEL 2
RENOVATION	2,768 SF	LEVEL 1
RENOVATION	2,768 SF	LEVEL 2
	9,664 SF	

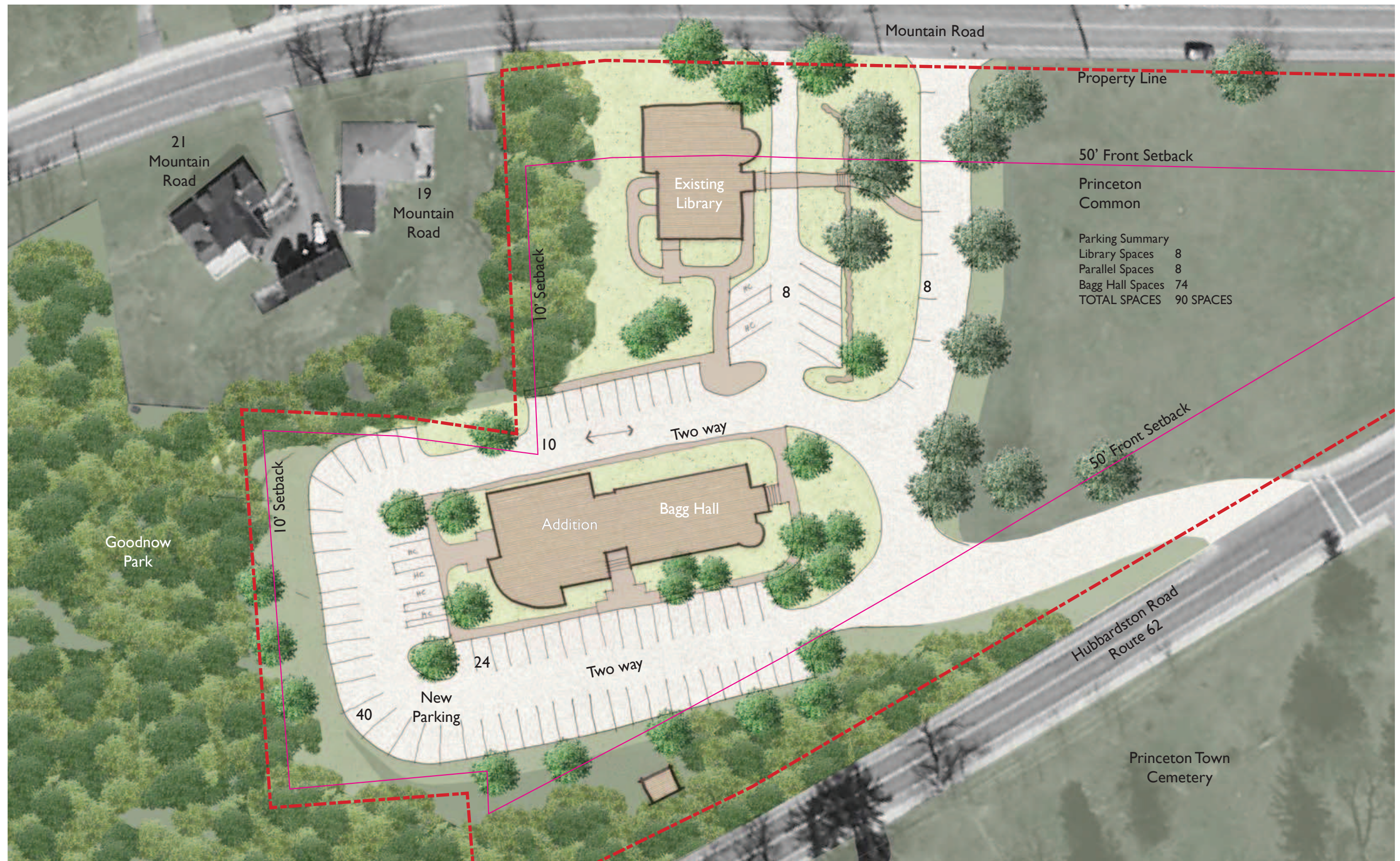
JWA
JONES WHITSETT
ARCHITECTS
 308 Main Street
 Greenfield, MA 01301
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 F. 413.773.5552
 office@joneswhitsett.com
 CONSULTANTS:

FLOOR PLANS - OPTION 2 - MEDIUM
PRINCETON FOUR BUILDING MASTER PLAN
 TOWN OF PRINCETON, MA

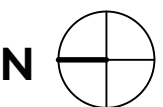
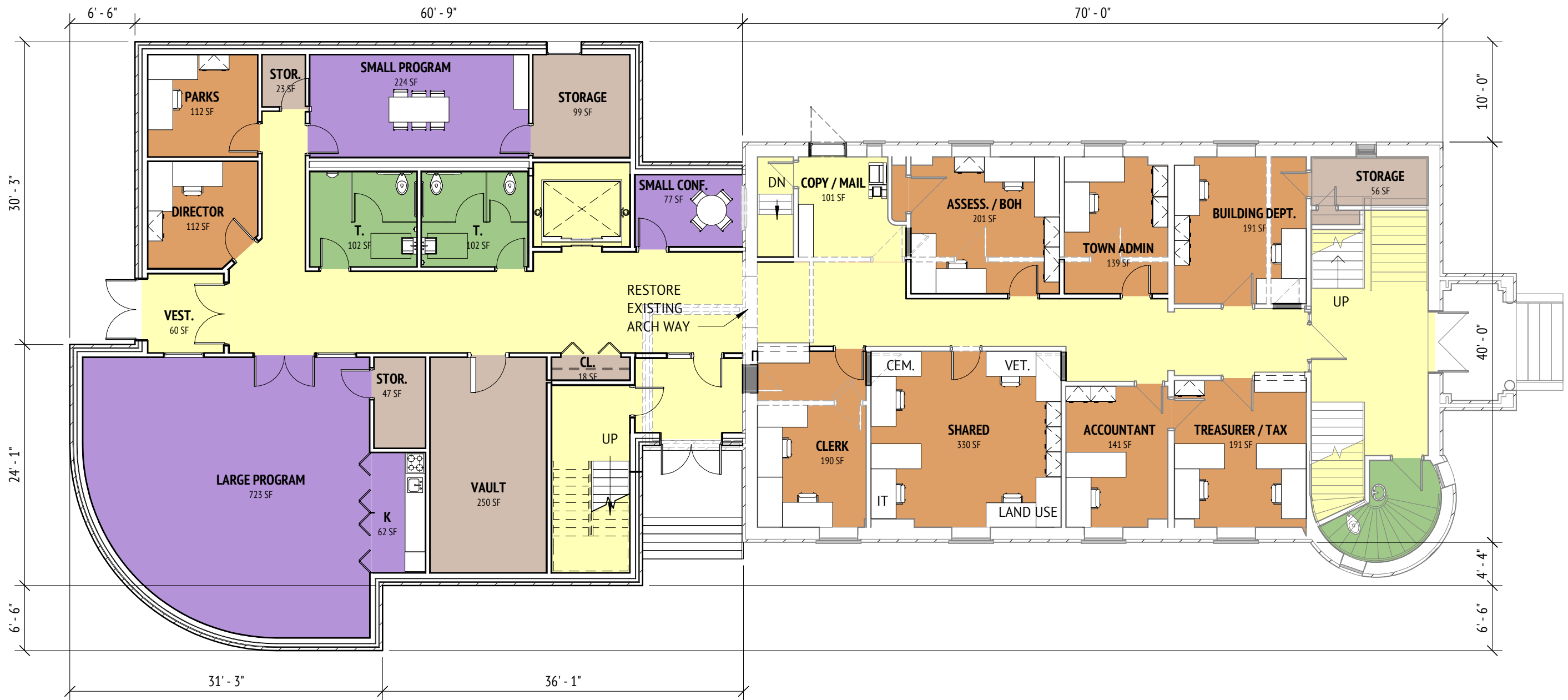
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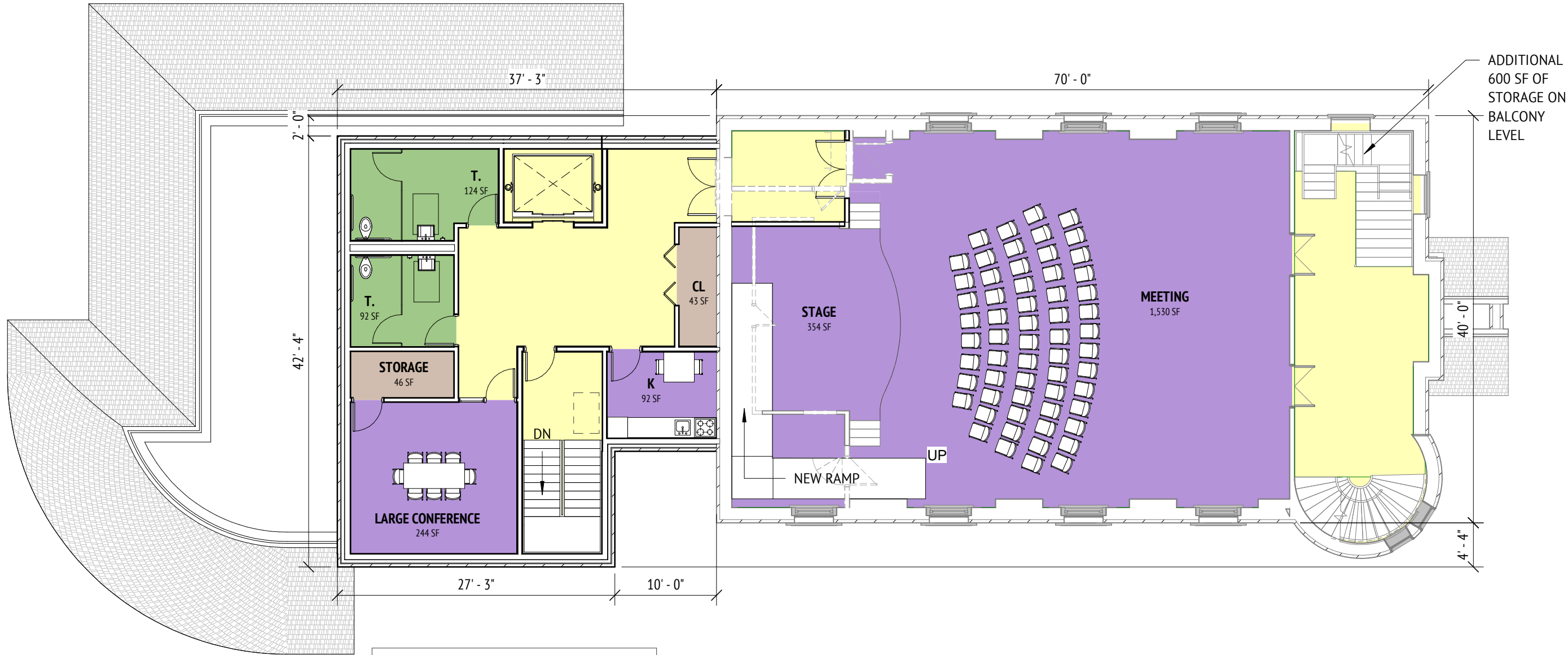
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**PRINCETON COMMON SITE
OPTION 3 - LARGE ADDITION**





OPTION 3 - TOTALS		
	AREA	LEVEL
NEW	3,289 SF	LEVEL 1
NEW	1,464 SF	LEVEL 2
RENOVATION	2,768 SF	LEVEL 1
RENOVATION	2,768 SF	LEVEL 2
	10,289 SF	



PROJECT:	1726
DATE:	1/8/18
DRAWN BY:	Author

SCALE:	3/32" = 1'-0"
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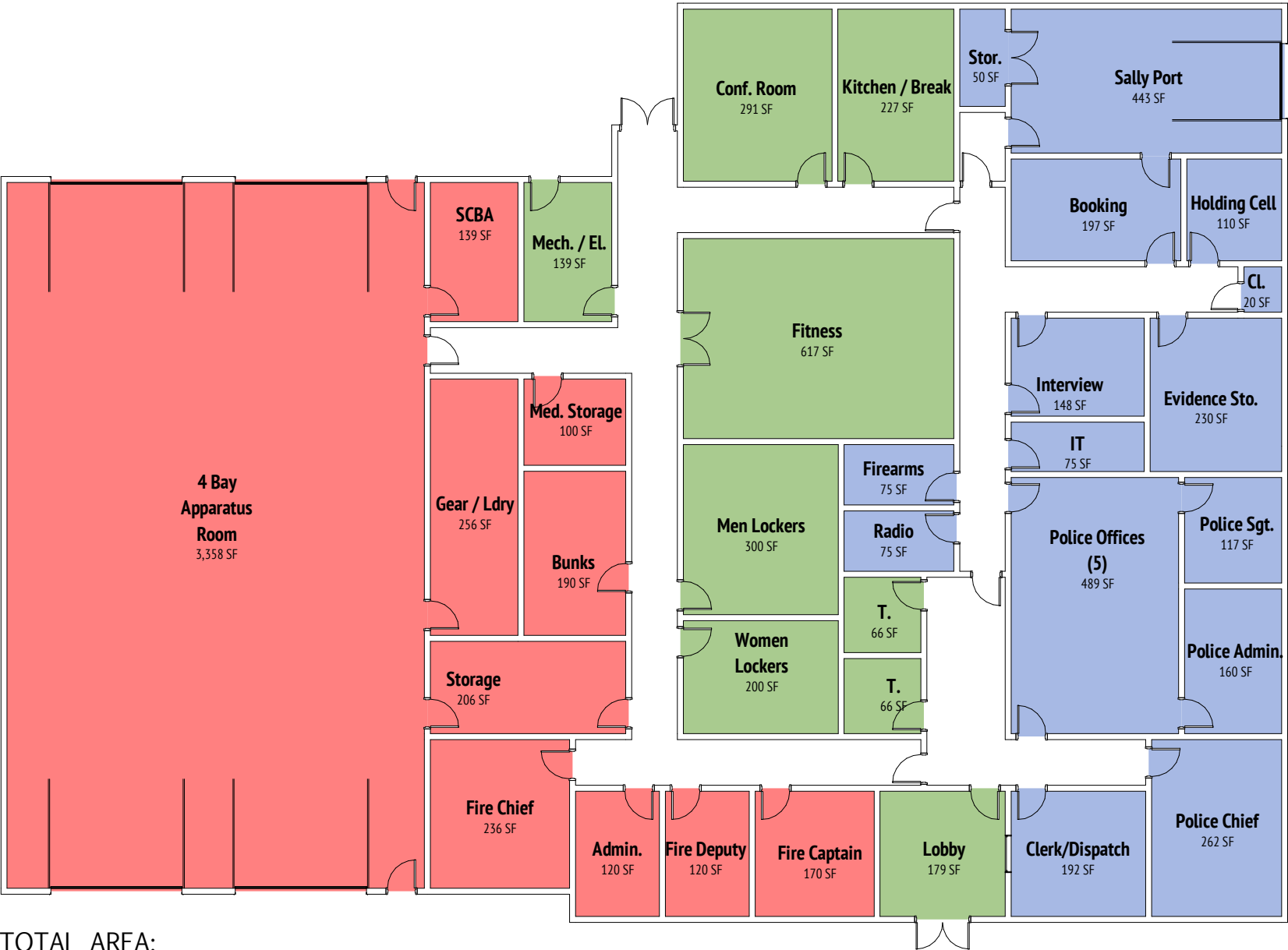


PRINCETON COMMON SITE
LARGE ADDITION WITH PHASING OPTION C



PRINCETON CENTER SITE
NEW BUILDING





TOTAL AREA:
11,700 SQUARE FEET

1 Floor Plan
1/16" = 1'-0"

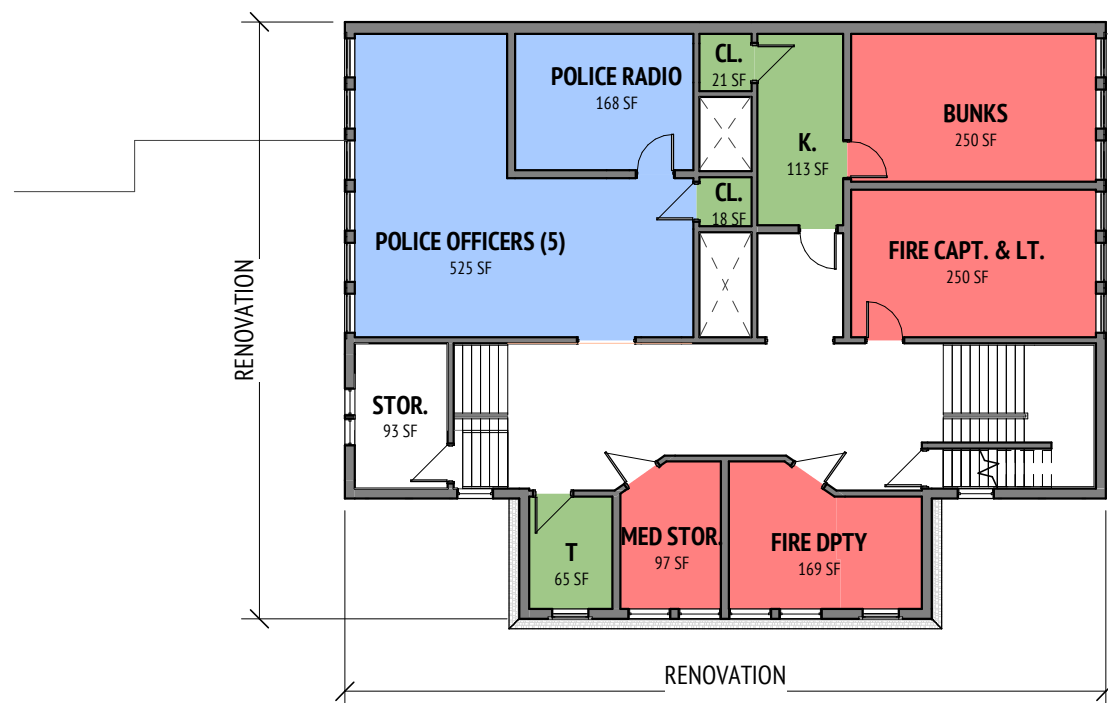
FLOOR PLAN - NEW OPTION
PRINCETON FOUR BUILDINGS MASTER PLAN
TOWN OF PRINCETON, MA

PROJECT:	
DATE:	2/14/18
DRAWN BY:	Author

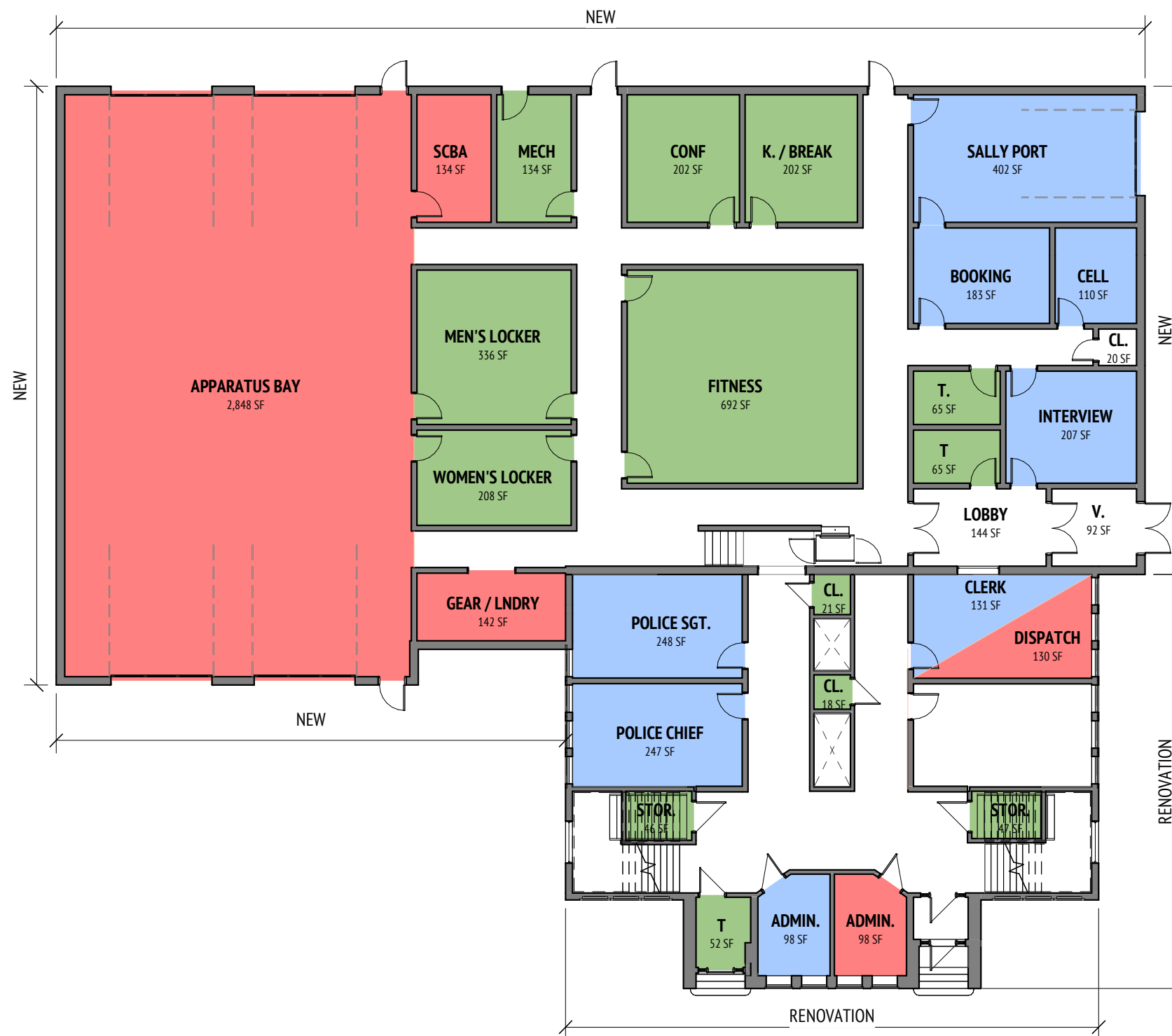
SCALE:	1/16" = 1'-0"
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POLICE EVIDENCE AND ADDITIONAL STORAGE PROVIDED
IN BASEMENT, NOT SHOWN

FIRST FLOOR GROSS AREA:
NEW: ~8,200 GSF
RENOVATION: ~2,800 GSF
SECOND FLOOR GROSS AREA:
RENOVATION: ~2,800 GSF
TOTAL GROSS AREA: 13,800



2 SECOND FLOOR
1/16" = 1'-0"



1 FIRST FLOOR
1/16" = 1'-0"

Public Safety Complex

The Princeton Center Building location was the site studied for location of a new public safety complex. Two options were proposed for Public Safety:

- NEW OPTION: Demolish the Princeton Center Building and build and all new Public Safety Complex (15,000 GSF)
- ADD/RENO OPTION: Retain and renovate the original 4-classroom school building, demolish the gym addition and construct a new addition to accommodate the needs of the police and fire programs (14,000 GSF)

At the request of the FSC, JWA worked with the fire and police chiefs to develop an even more efficient plan resulting in a building of 11,700 GSF which maximizes sharing of spaces between the departments. Additionally, JWA developed a more efficient add/reno option, with a resulting square footage of 13,800 GSF.

JWA utilized cost estimating services provided by PM&C, a firm with extensive experience in public bid projects in Massachusetts. Detailed cost estimates were sought at the following points in the Study:

- December 18, 2017 Cost Estimate included the following:
 - Bagg Hall Addition/Renovation Option 1A (SMALL addition)
 - Bagg Hall Addition/Renovation Option 1B (MEDIUM addition)
 - Bagg Hall Addition/Renovation Option 1C (LARGE addition)
 - Public Safety Complex Option 1 – Addition/Renovation at Princeton Center Building*
 - Public Safety Complex Option 2 –New Building (demolish Princeton Center Building)*

* Note that PM&C's estimates for the Public Safety options are for buildings of 16,000 SF for both the new option and add/reno options.

Following review by the FSC, additional cost information was requested to explore the following:

- January 9, 2018 Cost Estimate included:
 - Bagg Hall near-term improvements – Priority A
 - Bagg Hall near-term improvements – Priority B
 - Annex short term improvements

And finally, cost information was obtained for the repairs cited in the Existing Conditions report for the Public Safety Building. This estimate is dated March 6, 2018, and includes all of the Priority A items; however, at this point in time, the FSC is recommending that only some of these items be pursued in the near term.

Bagg Hall Scope of Work - Priority A

EXTERIOR SITE IMPROVEMENTS:

- Regrade exterior paving at east side of building to create drainage swale around East foundation
- Test Well Water, and inspect to determine quality of water

EXTERIOR REPAIRS:

- Repair damaged foundation walls on east and west side (due to water penetration)
- Underpinning and new foundation work required at NW corner and west wall. Reconstruct cracked brick masonry and repair or replace cracked stone units.
- Replace double hung, wood windows with new aluminum clad, wood frame units of matching configuration (6 over 6); OR restore existing units with double glazing and new jamb liners, equal to Window Master. Note: all "special" shape window units—arched units, multiple paned, to be restored, with interior storm panels applied.
- Masonry repointing: 15%. Remove damaged mortar and repoint, to match existing joint thickness & mortar composition and color
- Wash exterior walls, including stone trim components

INTERIOR REPAIRS:

- Adjust first floor structure to repaired foundation walls; raising beams to the extent possible (no need to achieve level, but an improvement beneficial).
- Patch and repair plaster ceiling on second floor; where plaster keys to lath is deteriorated, where staining has occurred, and in areas of major cracks & breakage.
- Add more baseboard heating to first floor in occupied rooms that do not meet temperature standards for office use (65 deg minimum).
- Insulate attic and install air barrier at openings to exterior.

- Coverplates for junction boxes to be closed.
- Replace Fire Alarm System, means of egress lighting and signage and add initiating devices: smoke, heat, CO and pull stations per code.
- Replace relay panel with radio master box.

Bagg Hall Scope of Work - Priority B

EXTERIOR SITE IMPROVEMENTS:

- Rework grades and replace ramp to East door
- Replace concrete pavers on sidewalks between Bagg Hall and the library
- Evaluate status of well if Public Safety remains on site and improvements/additions are made

EXTERIOR REPAIRS:

- Refinish and repair exterior doors
- Replace designated brownstone pieces at front porch
- Replace portions of the brick corbel at the eaves (assume 25%)
- Touch up paint at trim, eaves, cupola, etc.
- Re-set loose brick masonry at safe addition

INTERIOR REPAIRS:

- Insulate basement / first floor
- Add HVAC system to second floor if used for other than storage.
- Replace antiquated plumbing fixtures.

Town Hall Annex – stabilization items

EXTERIOR SITE IMPROVEMENTS:

- Place ADA space in close proximity to Annex
- Stripe pedestrian zone in front of the Annex for pedestrian use

EXTERIOR REPAIRS:

- Replace North side of asphalt shingle roof
- Install gutters throughout roof
- Repaint all surfaces - including trim
- Repair existing exterior building mounted lighting

INTERIOR REPAIRS:

- Fit out existing garage bay to convert to useable meeting space
- Add small kitchenette
- Renovate unisex toilet room
- Provide additional HVAC system for garage bay to be fitted out as meeting space
- Replace all electrical panels – including existing main distribution and load center panel. Shows signs of corrosion, all circuits are full, and the load center needs a cover.
- Replace relay panel with radio master box
- Replace Fire Alarm System, means of egress lighting and signage and add initiating devices: smoke, heat, CO and pull stations per code

PM&C's estimates provide the construction cost data. JWA has utilized a multiplier of 1.25 to calculate the overall project cost that would include OPM and design and engineering fees, testing and investigative costs that may be incurred as part of these proposed projects. Where estimated construction costs are less than \$1.5M, an OPM is not required, and therefore a project cost multiplier of 1.2 is utilized.

6.0 Cost Estimates

Using PM&C's more detailed information, JWA was additionally able to assemble cost information for the three phasing options A-C that were requested by the FSC for investigation.

The following are estimates were used to formulate the phasing option costs:

Public Safety				Annex	
New Building	11,904	\$ 330	\$ 3,928,320	Improvements	\$ 203,530
Demo			\$ 80,000		
HazMat			\$ 125,000	HazMat	NIC
Site			\$ 400,000	Site	Incl
GC Markups			\$ 900,000	GC Markups	\$ 96,500
TOTAL			\$5,433,320	TOTAL	\$ 300,000
Project Costs	(1.25)		\$6,791,650	Project Costs (1.2)	\$ 360,000

Bagg Hall Exterior Improvements				Bagg Hall (Large) Addition	
Priority A and Priority B			\$ 627,880	Addition	\$ 1,500,000
				Premium for Elevator	\$ 350,000
				Renovation	\$ 1,135,000
				Demo	\$ 50,000
HazMat			NIC	HazMat	\$ 90,000
Site			\$ -	Site	\$ 600,000
GC Markups			\$ 400,000	GC Markups	\$ 760,000
TOTAL			\$ 1,027,880	TOTAL	\$ 4,485,000
Project Costs	(1.2)		\$ 1,233,456	Project Costs (1.25)	\$ 5,606,250

Public Safety - Add/Reno			
New Building	8,200	\$ 330	\$ 2,706,000
Reno Building	5,600	\$ 300	\$ 1,680,000
Demo			\$ 40,000
HazMat			\$ 125,000
Site			\$ 400,000
GC Markups			\$ 900,000
TOTAL			\$ 5,851,000
Project Costs	(1.25)		\$ 7,313,750

6.0 Cost Estimates

Option A - Do it all at once			
2018			
Request funding for OPM and Design Services for Public Safety & Bagg Hall	75% x 15% of Const Costs	\$ 1,115,811	} \$ 12,397,900
2019			
Request Funding for Bagg Hall Project AND request funding for Public Safety	Proj Costs - design fees above	\$ 11,282,089	

Option B - Bagg Hall Repairs & Public Safety First - Bagg Hall Expansion Later			
2018			
Request Funding for Bagg Hall Repair Only	Proj Costs	\$ 1,233,456	} \$ 8,385,106
Request funding for Annex Improvement Scope	Proj Costs	\$ 360,000	
Request Funding for OPM and Designer Services for Public Safety	75% x 15% of Const Costs	\$ 611,248.50	
2019			
Request Funding for Public Safety	Proj Costs - design fees above	\$ 6,180,402	} \$14,899,081
wait			
2028			
Request funding for OPM and Designer Services for Bagg Hall Expansion	(75% x 15% of Const Costs) x 140% for escalation	\$ 706,388	
2029			
Request funding for Bagg Hall Expansion	(Proj Costs - Repair Costs - Design Fees above) x 144% for escalation x 110% to accommodate additional degradation	\$ 5,807,588	} \$ 6,513,975

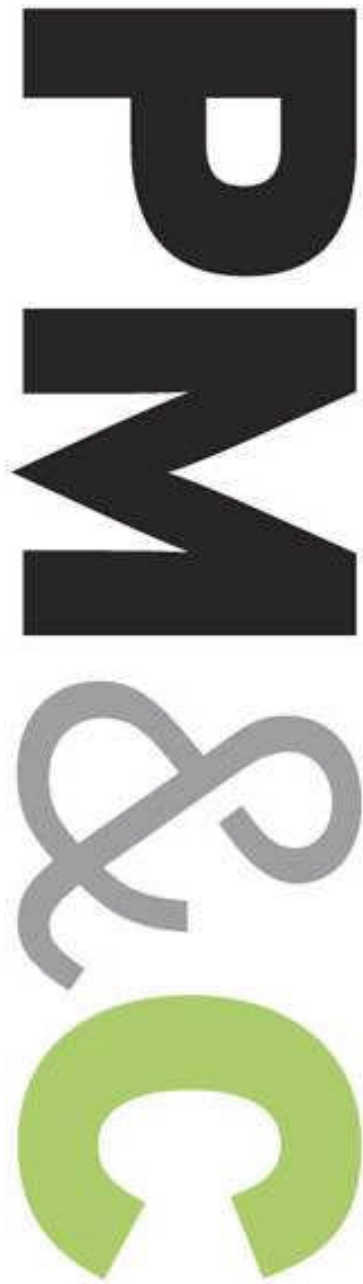
Option C - Bagg Hall Expansion First - Public Safety Later			
2018			
Request funding for OPM and Designer Services for Bagg Hall Expansion	75% x 15% of Const Costs	\$ 504,562.50	} \$ 6,210,813
Request funding for minimal shoring up of Public Safety	Lump sum	\$ 100,000	
2019			
Request funding for Bagg Hall Expansion	Proj Costs	\$ 5,606,250	} \$15,125,423
wait			
2025			
Request Funding for OPM and Designer Services for Public Safety	(75% x 15% of Const Costs) x 128% for escalation	\$ 782,398	
2026			
Request Funding for Public Safety	(Proj Costs - Design Fees above) x 132% for escalation + 200,000 for additional site work & demo	\$ 8,132,213	} \$ 8,914,611

6.0 Cost Estimates

Finally, if a project for a new Public Safety Complex is not pursued in the short term (Phasing Option C), JWA recommends that the following measures be taken to stabilize the condition of this building:

- Install temporary shoring posts during winter months for roof truss support
- Remove and replace rotted trim
- Replace 4 window units
- Paint building exterior
- Raise oil tank vent pipe
- Add a motorized damper on the combustion air duct to save energy
- In the police station, replace the utility closet ceiling exhaust fan and other inoperable ceiling exhaust fans
- Add an exhaust fan to the fire station bathroom.

Based on PM&C's estimate dated March 6, 2018, the cost for doing only these measures with mark-ups is \$76,050. In the above calculations for Option C, a lump sum of \$100,000 has been used.



Feasibility Study

Princeton Municipal Buildings

Design Options

Princeton, MA

PM&C LLC
20 Downer Avenue
Hingham, MA 02043
(T) 781-740-8007
(F) 781-740-1012

Prepared for:

Jones Whitsett Architects

December 18, 2017



Princeton Municipal Buildings
Design Options
Princeton, MA

18-Dec-17

Feasibility Study

MAIN CONSTRUCTION COST SUMMARY

	Start of Construction	Gross Floor Area	\$/sf	Estimated Construction Cost
<hr/>				
BAGG HALL SITE - TOWN HALL OPTIONS	June-19			
OPTION 1A (SMALL ADDITION)				
ADDITION		1,872	\$290.00	\$542,880
PREMIUM FOR ELEVATOR				\$350,000
RENOVATION		5,681	\$190.00	\$1,079,390
DEMO Existing Buildings				\$50,000
HAZARDOUS MATERIAL ABATEMENT (Allowance)				\$90,896
SITEWORK				\$600,000
SUB-TOTAL		7,553	\$359.22	\$2,713,166
GENERAL CONDITIONS	7%			\$189,922
BONDS	1.00%			\$27,132
INSURANCE	1.75%			\$47,480
PERMIT				NIC
OVERHEAD AND FEE	4%			\$108,527
ESCALATION	6%			\$178,662
DESIGN AND PRICING CONTINGENCY				INCL
TOTAL OF ALL CONSTRUCTION		7,553	\$432.26	\$3,264,889



Princeton Municipal Buildings
Design Options
Princeton, MA

18-Dec-17

Feasibility Study

MAIN CONSTRUCTION COST SUMMARY

	Start of Construction	Gross Floor Area	\$/sf	Estimated Construction Cost
<hr/>				
	Jun-19			
OPTION 1B (MEDIUM ADDITION)				
ADDITION		4,148	\$290.00	\$1,202,920
PREMIUM FOR ELEVATOR				\$350,000
RENOVATION		5,681	\$200.00	\$1,136,200
DEMO Existing Buildings				\$50,000
HAZARDOUS MATERIAL ABATEMENT (Allowance)				\$90,896
SITEWORK				\$600,000
SUB-TOTAL		9,829	\$348.97	\$3,430,016
GENERAL CONDITIONS	7%			\$240,101
BONDS	1.00%			\$34,300
INSURANCE	1.75%			\$60,025
PERMIT				NIC
OVERHEAD AND FEE	4%			\$137,201
ESCALATION	6%			\$225,867
DESIGN AND PRICING CONTINGENCY	12%			INCL
TOTAL OF ALL CONSTRUCTION		9,829	\$419.93	<u>\$4,127,510</u>



Princeton Municipal Buildings
Design Options
Princeton, MA

18-Dec-17

Feasibility Study

MAIN CONSTRUCTION COST SUMMARY

	Start of Construction	Gross Floor Area	\$/sf	Estimated Construction Cost
<hr/>				
	Jun-19			
OPTION 1C (LARGE ADDITION)				
ADDITION		5,173	\$290.00	\$1,500,170
PREMIUM FOR ELEVATOR				\$350,000
RENOVATION		5,681	\$200.00	\$1,136,200
DEMO Existing Buildings				\$50,000
HAZARDOUS MATERIAL ABATEMENT (Allowance)				\$90,896
SITEWORK				\$600,000
SUB-TOTAL		10,854	\$343.40	\$3,727,266
GENERAL CONDITIONS	7%			\$260,909
BONDS	1.00%			\$37,273
INSURANCE	1.75%			\$65,227
PERMIT				NIC
OVERHEAD AND FEE	4%			\$149,091
ESCALATION	6%			\$245,441
DESIGN AND PRICING CONTINGENCY	12%			INCL
TOTAL OF ALL CONSTRUCTION		10,854	\$413.23	\$4,485,207



Princeton Municipal Buildings
Design Options
Princeton, MA

18-Dec-17

Feasibility Study

MAIN CONSTRUCTION COST SUMMARY

	Start of Construction	Gross Floor Area	\$/sf	Estimated Construction Cost
<hr/>				
PRINCETON CENTER SITE - PUBLIC SAFETY OPTIONS	June-19			
OPTION 1				
ADDITION		12,000	\$330.00	\$3,960,000
RENOVATION		4,000	\$300.00	\$1,200,000
DEMO Existing Building				\$40,000
HAZARDOUS MATERIAL ABATEMENT (Allowance)				\$128,000
SITEWORK				\$500,000
SUB-TOTAL		16,000	\$364.25	\$5,828,000
GENERAL CONDITIONS	7%			\$407,960
BONDS	1.00%			\$58,280
INSURANCE	1.75%			\$101,990
PERMIT				NIC
OVERHEAD AND FEE	4%			\$233,120
ESCALATION	6%			\$383,774
DESIGN AND PRICING CONTINGENCY				INCL
TOTAL OF ALL CONSTRUCTION		16,000	\$438.32	\$7,013,124



Princeton Municipal Buildings
Design Options
Princeton, MA

18-Dec-17

Feasibility Study

MAIN CONSTRUCTION COST SUMMARY

	Start of Construction	Gross Floor Area	\$/sf	Estimated Construction Cost
<hr/>				
	Jun-19			
OPTION 2				
NEW BUILDING		16,000	\$330.00	\$5,280,000
DEMO Existing Building				\$80,000
HAZARDOUS MATERIAL ABATEMENT (Allowance)				\$128,000
SITEWORK				\$500,000
SUB-TOTAL		16,000	\$374.25	\$5,988,000
GENERAL CONDITIONS	7%			\$419,160
BONDS	1.00%			\$59,880
INSURANCE	1.75%			\$104,790
PERMIT				NIC
OVERHEAD AND FEE	4%			\$239,520
ESCALATION	6%			\$394,310
DESIGN AND PRICING CONTINGENCY	12%			INCL
TOTAL OF ALL CONSTRUCTION		16,000	\$450.35	\$7,205,660



Feasibility Design Estimate

Princeton Municipal Buildings **Bagg Hall + Annex**

Princeton, MA

PM&C LLC
20 Downer Avenue, Suite 1c
Hingham, MA 02043
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Prepared for:

Jones Whitsett Architects

January 9, 2018

**Princeton Municipal Buildings**

Bagg Hall + Annex

Princeton, MA

09-Jan-18

Feasibility Design Estimate**MAIN CONSTRUCTION COST SUMMARY**

	Construction Start	Estimated Construction Cost
BAGG HALL PRIORITY A ITEMS	May-20	\$379,975
BAGG HALL PRIORITY B ITEMS		\$228,906
HAZARDOUS MATERIAL ABATEMENT		NIC
GENERAL REQUIREMENTS	5.00%	\$18,999
SUB-TOTAL		\$627,880
GENERAL CONDITIONS	4 months	\$120,000
DESIGN AND PRICING CONTINGENCY	15%	\$94,182
ESCALATION	12.08%	\$75,848
PERMIT		Assumed Waived
INSURANCE	1.00%	\$9,179
OVERHEAD+ PROFIT	10.0%	\$92,709
BONDS	1.00%	\$3,919
OWNER CONTINGENCY		By Owner
TOTAL OF ALL CONSTRUCTION		\$1,023,717



Princeton Municipal Buildings

Bagg Hall + Annex

Princeton, MA

Feasibility Design Estimate

09-Jan-18

MAIN CONSTRUCTION COST SUMMARY

	Construction Start	Estimated Construction Cost
<hr/>		
	May-20	
ANNEX BUILDING SHORT TERM IMPROVEMENTS		\$277,859
HAZARDOUS MATERIAL ABATEMENT		NIC
GENERAL REQUIREMENTS	5.00%	\$13,893
SUB-TOTAL		\$291,752
GENERAL CONDITIONS	2 months	\$30,000
DESIGN AND PRICING CONTINGENCY	15%	\$43,763
ESCALATION	12.08%	\$35,244
PERMIT		Assumed Waived
INSURANCE	1.00%	\$4,308
OVERHEAD+ PROFIT	10.0%	\$43,507
BONDS	1.00%	\$1,868
OWNER CONTINGENCY		By Owner
TOTAL OF ALL CONSTRUCTION		\$480,442



Princeton Municipal Buildings

Bagg Hall + Annex

Princeton, MA

09-Jan-18

Feasibility Design Estimate

This Feasibility cost estimate was produced from scope items prepared by Jones Whitsett Architects and their design team dated December 26, 2017. Design and engineering changes occurring subsequent to the issue of these documents have not been incorporated in this estimate.

This estimate includes all direct construction costs, general contractor's overhead and profit and design contingency. Cost escalation assumes start dates indicated above.

We have assumed procurement will utilize a public bid to pre-qualified general contractors and subcontractors, open specifications for materials and manufacturers.

The estimate is based on prevailing wage rates for construction in this market and represents a reasonable opinion of cost. It is not a prediction of the successful bid from a contractor as bids will vary due to fluctuating market conditions, errors and omissions, proprietary specifications, lack or surplus of bidders, perception of risk, etc. Consequently the estimate is expected to fall within the range of bids from a number of competitive contractors or subcontractors, however we do not warrant that bids or negotiated prices will not vary from the final construction cost estimate.

ITEMS NOT CONSIDERED IN THIS ESTIMATE

Items not included in this estimate are:

- Land acquisition, feasibility, and financing costs
- Site or existing conditions surveys investigations costs, including to determine subsoil conditions
- Items identified in the design as Not In Contract (NIC)
- Items identified in the design as by others
- Owner supplied and/or installed items as indicated in the estimate
- Utility company back charges, including work required off-site
- Owners Construction contingency



Feasibility Design Estimate

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
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BAGG HALL PRIORITY A ITEMS

A - Bagg Hall Renovations in Next 0-3 Years

Regrade exterior paving at east side of building to create drainage swale around East foundation	800	sf	15.00	12,000	
Test Well Water, and inspect to determine quality of water	1	ls	600.00	600	
Repair damaged foundation walls on east and west side (due to water penetration)	80	lf	430.00	34,400	
Underpinning and new foundation work required at NW corner and west wall. Reconstruct cracked brick masonry and repair or replace cracked stone units	30	lf	1,250.00	37,500	
Replace double hung, wood windows with new aluminum clad, wood frame units of matching configuration (6 over 6) Note: all "special" shape window units—arched units, multiple paned, to be restored, with interior storm panels applied	750	sf	160.00	120,000	
Masonry repointing: 15%. Remove damaged mortar and repoint, to match existing joint thickness & mortar composition and color	990	sf	35.00	34,650	
Wash exterior walls, including stone trim components	6,600	sf	6.00	39,600	
Adjust first floor structure to repaired foundation walls, raising beams to the extent possible	2,500	sf	5.00	12,500	
Patch and repair plaster ceiling on second floor; where plaster keys to lath is deteriorated, where staining has occurred, and in areas of major cracks & breakage	2,300	sf	15.00	34,500	
Add more baseboard heating to first floor	90	lf	140.00	12,600	
Insulate attic and install air barrier at openings to exterior	1	ls	15,400.00	15,400	
Cover plates for junction boxes to be closed	1	ls	500.00	500	
Replace Fire Alarm System, means of egress lighting and signage and add initiating devices: smoke, heat, CO and pull stations per code	4,945	sf	5.00	24,725	
Replace relay panel with radio master box	1	ls	1,000.00	1,000	
SUBTOTAL					379,975



Feasibility Design Estimate

<i>CSI CODE</i>	<i>DESCRIPTION</i>	<i>QTY</i>	<i>UNIT</i>	<i>UNIT COST</i>	<i>EST'D COST</i>	<i>SUB TOTAL</i>	<i>TOTAL COST</i>
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BAGG HALL PRIORITY B ITEMS

B - Bagg Hall Renovations in Next 4-10 Years

	Rework grades and replace ramp to East door	1	ls	30,000.00	30,000		
	Replace concrete pavers on sidewalks between Bagg Hall and the library	500	sf	25.00	12,500		
	Test Well Water, and inspect to determine quality of water	1	ls	600.00	600		
	Refinish and repair exterior doors	1	ls	9,550.00	9,550		
	Replace designated brownstone pieces at front porch	1	ls	10,000.00	10,000		
	Replace portions of the brick corbel at the eaves (assume 25%)	56	lf	350.00	19,600		
	Touch up paint at trim, eaves, cupola, etc.	1	ls	15,000.00	15,000		
	Re-set loose brick masonry at safe addition	518	sf	50.00	25,900		
	Insulate basement / first floor	2,564	sf	4.00	10,256		
	Add HVAC system to second floor if used for other than storage	2,300	sf	35.00	80,500		
	Replace antiquated plumbing fixtures	1	ls	15,000.00	15,000		
	SUBTOTAL					228,906	



Feasibility Design Estimate

CSI CODE	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
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ANNEX BUILDING SHORT TERM IMPROVEMENTS

Annex Building Improvements for 0-10 Years of additional use

Place ADA space in close proximity to Annex	1	ls	2,000.00	2,000		
Stripe pedestrian zone in front of the Annex for pedestrian use	1	ls	500.00	500		
Replace North side of asphalt shingle roof	1,443	sf	24.00	34,632		
Install gutters throughout roof	164	lf	35.00	5,740		
Repaint all surfaces - including trim	1	ls	15,000.00	15,000		
Add exterior building mounted lighting	2	loc	1,000.00	2,000		
Replace water stained carpet	1,423	sf	7.00	9,961		
Make sure that slab-on-grade has water-proofing applied	2,378	sf	6.00	14,268		
Insulate inside of exterior walls with 2" spray foam and fur out interior walls	3,108	sf	12.50	38,850		
Fit out existing garage bay to convert to useable meeting space	500	sf	100.00	50,000		
Add Kitchenette	1	ls	10,750.00	10,750		
Provide separate accessible Men's and Women's bathrooms	2	loc	30,000.00	60,000		
Provide drinking fountain and mop sink	1	ls	7,000.00	7,000		
Add additional HVAC system if Garage Bay is fitted out as meeting space	1	ls		Included Above		
Replace all electrical panels – including existing main distribution and load center panel. Shows signs of corrosion, all circuits are full, and the load center needs a cover	2,378	sf	6.00	14,268		
Replace relay panel with radio master box	1	ls	1,000.00	1,000		
Replace Fire Alarm System, means of egress lighting and signage and add initiating devices: smoke, heat, CO and pull stations per code	2,378	sf	5.00	11,890		
SUBTOTAL						277,859



Short Term Repairs Estimate

Public Safety Building Site Assessment

Princeton, MA

PM&C LLC
20 Downer Ave, Suite 1C
Hingham, MA 02043
(T) 781-740-8007
(F) 781-740-1012

Prepared for:
Jones Whitsett Architects

March 6, 2018



Public Safety Building
Site Assessment
Princeton, MA

06-Mar-18

Short Term Repairs Estimate

GFA 6,000

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
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SHORT TERM REPAIRS

GROSS FLOOR AREA CALCULATION

Site Building

6,000

TOTAL GROSS FLOOR AREA (GFA)

6,000

D20 PLUMBING

D20 PLUMBING, GENERALLY

Replace all fixtures. Provide accessible public and staff facilities	1	ls	12,000.00	NIC
Provide mixing valves at lavatories	1	ls	4,000.00	NIC
Provide new service sink	1	ea	3,000.00	NIC
Provide new drinking fountain	1	ea	4,500.00	NIC
Provide mixing valves at water heater	1	ea	2,000.00	NIC
Install hot water circulator pump	1	ea	2,000.00	NIC
Reduced pressure backflow preventer to sprinkler heads	1	ea	1,000.00	NIC
Reduced pressure backflow preventer on supply to hose valves	1	ea	1,000.00	NIC
Video inspect and replace poor draining sanitary piping	1	ls	5,000.00	NIC
Install floor drains in garage areas, extend drain to exterior waste holding tank	1	ls	15,000.00	NIC
SUBTOTAL				-

TOTAL - PLUMBING

D30 HVAC

D30 HVAC, GENERALLY

Raise oil tank vent	1	ls	600.00	600
Add motorized damper to combustion air duct	2	ea	1,200.00	2,400
Replace utility closet ceiling exhaust fan	1	ea	1,200.00	1,200
Add exhaust fan to fire station restroom	1	ls	2,000.00	2,000
Add fresh air duct to police station air handler	1	ls	3,000.00	NIC
Add ductless mini-split air conditioner to fire station office	1	ls	5,500.00	NIC
Add central ventilation system to police station with energy recovery unit located in attic with duct run in attic	1	ls	15,000.00	NIC
SUBTOTAL				6,200

TOTAL - HVAC

\$6,200

D40 FIRE PROTECTION

D40 FIRE PROTECTION, GENERALLY

No work in this section

SUBTOTAL

-

TOTAL - FIRE PROTECTION

D50 ELECTRICAL

D5010 SERVICE & DISTRIBUTION

Normal Power

Modify and upgrade existing panelboards to accommodate new mechanical equipment 1 ls 3,500.00 3,500

Equipment Wiring

Hot water circulator pump feed and connection 1 ea 1,200.00 NIC

Drinking fountain feed and connection 1 ea 850.00 NIC



Public Safety Building
Site Assessment
Princeton, MA

06-Mar-18

Short Term Repairs Estimate

GFA

6,000

	DESCRIPTION	QTY	UNIT	UNIT COST	EST'D COST	SUB TOTAL	TOTAL COST
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SHORT TERM REPAIRS

56	ERU feed and connection	1	ea	1,200.00	NIC		
57	Motorized damper feed and connection	2	ea	350.00	700		
58	Exhaust fan feed and connection	2	ea	650.00	1,300		
59	Split unit feed and connection	1	ea	2,000.00	NIC		
60	SUBTOTAL					5,500	

D5020 LIGHTING & POWER

63	Replace lighting in building	6,000	sf	5.00	NIC		
64	Replace outdoor lighting	1	ls	3,000.00	NIC		
65	Replace Exit and egress lighting	6,000	sf	0.50	NIC		
66	SUBTOTAL					-	

D5030 COMMUNICATION & SECURITY SYSTEMS

69	<u>Fire Alarm</u>						
70	New control panel	1	ls	4,500.00	NIC		
71	New radio master box	1	ls	5,000.00	NIC		
72	Initiating reporting devices and circuitry	6,000	sf	2.00	NIC		
73	<u>Telecom</u>						
74	IDF closet	1	ls	2,500.00	NIC		
75	Update devices and cabling	6,000	sf	2.00	NIC		
76	<u>Security System (If needed)</u>						
77	New control panel, devices and circuitry	6,000	sf	1.50	NIC		
78	<u>Radio Call Room</u>						
79	Equipment provided by others				By Others		
80	Rough-in with conduit and backboxes	1	ls	2,000.00	NIC		
81	SUBTOTAL					-	

82	TOTAL - ELECTRICAL						\$5,500
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83	Provide temporary shoring	1	ls	5,000.00	5,000		
84	Patch and repair ceilings/walls for MEP modifications	1	ls	10,000.00	10,000		
	Subtotal					15,000	

	SUBTOTAL SHORT TERM FIXES					\$26,700	
	MARKUPS	50%				\$13,350	
	TOTAL SHORT TERM FIXES					\$40,050	

The Facilities Steering Committee has endorsed pursuit of the following for the four town buildings studied as part of this master plan:

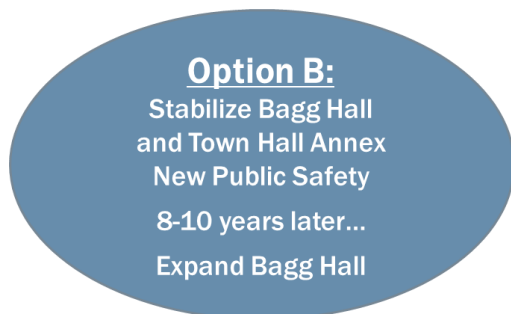
- A new facility for police and fire to be constructed at the Princeton Center site. This can be done as an all-new building or a renovation/addition to the existing Princeton Center Building
- Town hall departments should remain in a renovated and enlarged Bagg Hall
- Council on Aging and community uses should be accommodated in the enlarged and improved Bagg Hall
- The Town Hall Annex and existing Public Safety Complex should be demolished and the site redesigned to provide additional parking for the enlarged Bagg Hall and Goodnow Library.

With input by the FSC, JWA has outlined three different scenarios from a standpoint of timing to help understand the impacts of project cost over time:



Option A – Do it all at once

New Public Safety Complex \$6.8M
Expand & Renovate Bagg Hall \$5.6M
Total Cost: \$12.4M
Tax Impact: \$ 550 or 9%



Option B – Do projects over time; new Public Safety Complex first

Repair Bagg Hall \$1.2M
Improve Annex \$360K
New Public Safety Complex \$8.6M
Then, 8-10 years later,
Expand Bagg Hall \$6.5M
Total Cost: \$15.1M
Tax Impact: \$385 or 6.5%, Then \$290 or 5%



Option C - Do projects over time; Bagg Hall addition/renovation first

Expand Bagg Hall + Minimal Repairs to Public Safety Complex \$6.1M
Then, 6 years later,
New Public Safety Complex \$8.9M
Total Cost: \$15M
Tax Impact: \$270 or 4.5%, Then \$400 or 6.7%

7.0 Consensus Solution & Proposed Schedule

JWA recommends that the Town seriously consider pursuing Phasing Option A, particularly in comparison to the other options utilizing the following criteria for analysis:

	Option A FINANCE ALL AT ONCE 1 – Public Safety 2 - Bagg Hall Reno/Addition	Option B Stabilize Bagg Hall & Annex New Public Safety *PAUSE* Bagg Hall Reno/Addition	Option C Bagg Hall Reno/Addition Repair Public Safety *PAUSE* New Public Safety
Estimated Project Cost	\$12.4M	\$8.6 M \$6.5 M } \$15.1 M	\$6.1 M \$8.9 M } \$15 M
Tax Impacts	Single tax impact	Tax impacts over longer duration	Tax impacts over longer duration
Site Work	Site work performed at one time following Public Safety removal	Site work can be done at one time	Site work done in phases & additional parking required north of library
Overall Timeframe	3-4 years	10-12 years	9-11 years
Issue Prioritized	Safety & Community Uses	Safety	Community Uses
Interim Parking Impacts @ Princeton Commons	Removes Public Safety prior to Bagg Hall project for more site options	Removal of Public Safety improves parking options	Restricts parking and vehicular movement until Public Safety is moved
Site Constraints @ Princeton Commons	Public Safety built first, demolished then Bagg Hall Addition built	Public Safety built first freeing site for future work on Bagg Hall	Site is extremely tight for building Bagg Addition w/Public Safety to remain in first phase
Money Spent on Temp Fixes	No – All projects in near term	Invests in Annex	Invests in Public Safety
Restricts Bagg Hall Design Options	No	No	Yes

Legend :

Good	Fair	Poor
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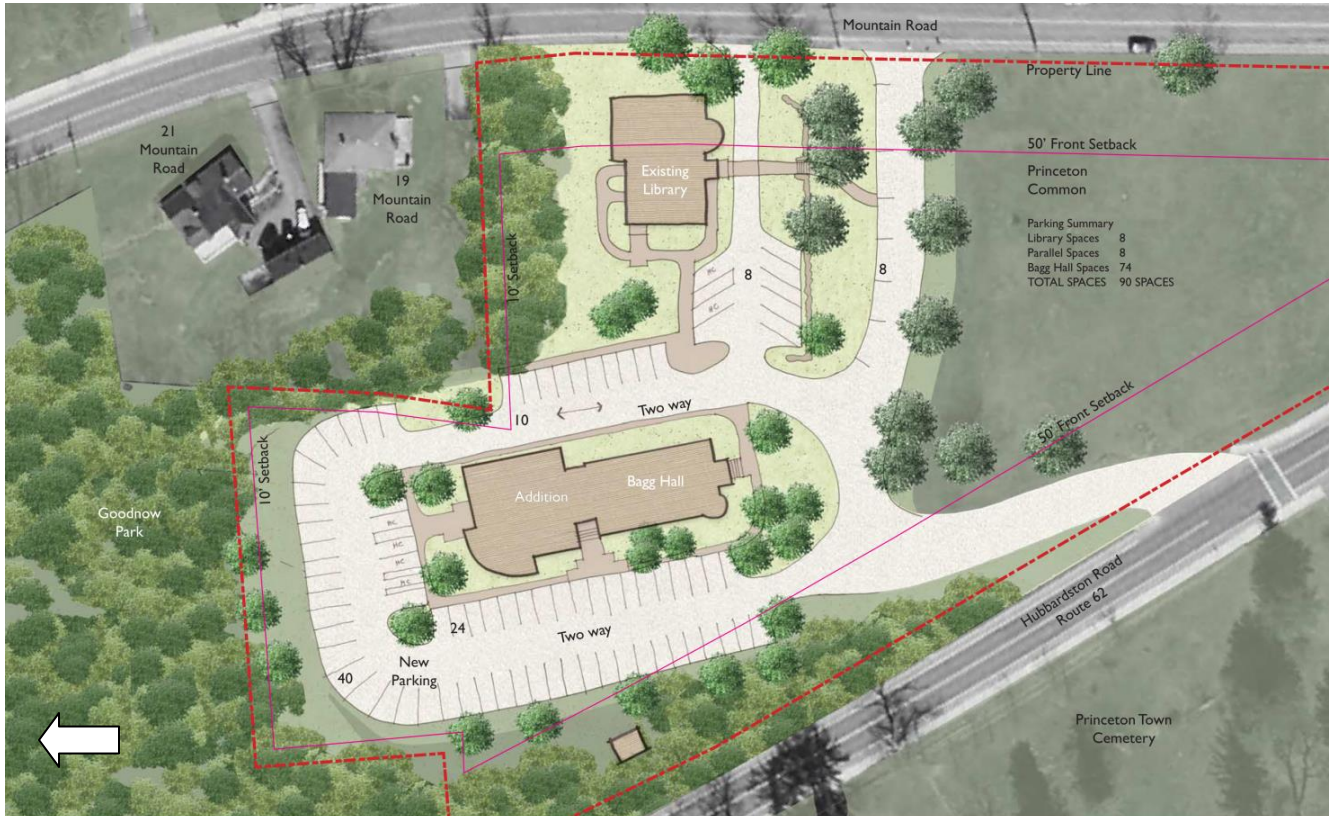
However, financing the projects in a way that will result in voter support may result in a more drawn out approach over many years and is ultimately the decision of the FSC.

With respect to the options for the Public Safety Complex at the Princeton Center Building site, JWA recommends that the renovation of the existing building be fully explored as the preferred approach to meeting the needs of the program for police and fire. An Add/Reno approach would provide an historic aesthetic to the new fire station that simply could not be achieved without substantial costs, and preserves a historic building well loved by many Princeton citizens (and voters).

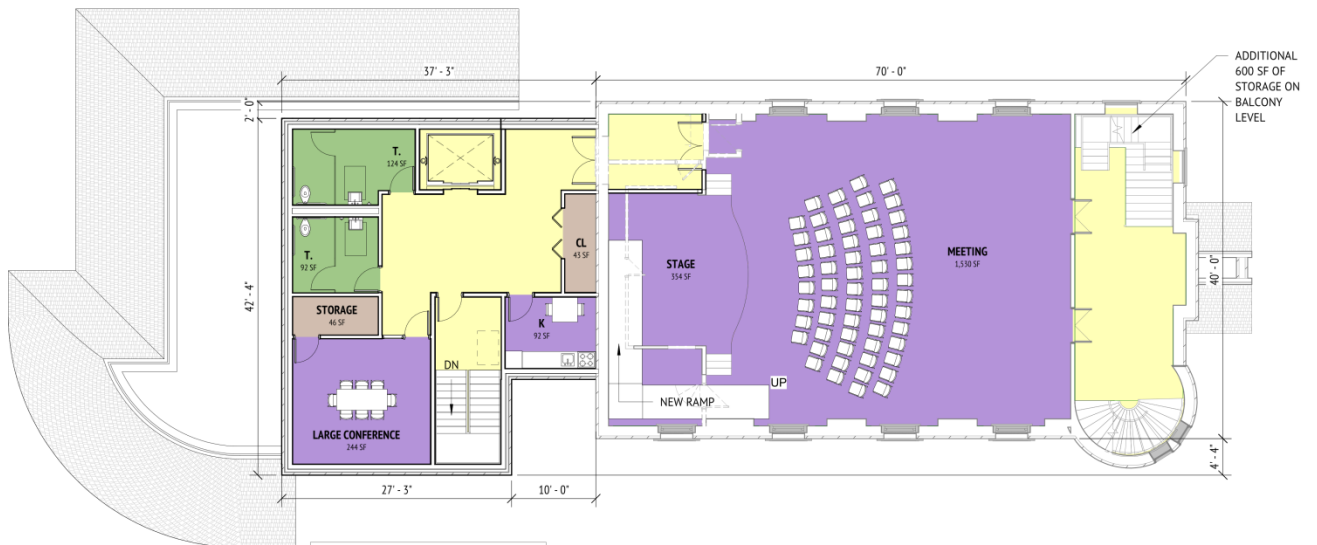
Our initial planning of the Add/Reno scheme resulted in some inefficiency, since only non-public uses could be located on the second and lower floors of the building. If further planning and study of the building determines that this historic structure does not lend itself well for reuse, then requesting approval for its demolition, to provide a site for an all-new public safety complex, would be an acceptable alternative.

Bagg Hall Addition/Renovation

This site plan depicts the large addition to Bagg Hall assuming that the existing Public Safety Building and Town Hall Annex have been demolished:



7.0 Consensus Solution & Proposed Schedule



OPTION 3 - TOTALS		
	AREA	LEVEL
NEW	3,289 SF	LEVEL 1
NEW	1,464 SF	LEVEL 2
RENOVATION	2,768 SF	LEVEL 1
RENOVATION	2,768 SF	LEVEL 2
	10,289 SF	



Public Safety Complex

The site plan presented here is depicting the concept of an all-new building with an ability to expand to add an additional 2-vehicle bay to the south.



7.0 Consensus Solution & Proposed Schedule

All new public safety complex option:



TOTAL AREA:
11,700 SQUARE FEET



7.0 Consensus Solution & Proposed Schedule

Add/Renovation option:

NOTES:
POLICE EVIDENCE AND ADDITIONAL STORAGE PROVIDED
IN BASEMENT, NOT SHOWN

FIRST FLOOR GROSS AREA:
NEW: ~8,200 GSF
RENOVATION: ~2,800 GSF
SECOND FLOOR GROSS AREA:
RENOVATION: ~2,800 GSF
TOTAL GROSS AREA: 13,800



[illegible]